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ABSTRACT

The Reality-Based Evaluation (RBE) Portfolio was produced to assist postsecondary educators in the conduct of local program evaluation efforts. The content of the portfolio is not subject-matter specific in order to be applicable to the widest variety of educational programs and projects. The rationale and model for program evaluation as it relates to student and personnel performance, procedures and processes, services and products, and instructional strategies and materials are outlined for the pre-evaluation, clarification of objectives, data collection, and interpretation phases of the process. Standards in areas of evaluation objectives, criterion measures, judgments, and recommendations are also considered, and suggestions are given for adapting the RBE process to new and existing programs, and to service programs. Other topics include justifying the program, defining program objectives, evaluation techniques and instruments, the evaluation report format, and the role of the financial analysis. Evaluation design materials are included, and orientation procedures are discussed. Three case studies, demonstrating the use of RBE for program, course, and project evaluations, conclude the report. (MB)

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RBE Program Evaluation Portfolio

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COLLEGE OCCUPATIONAL PROGRAMS

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PROJECT STAFF

Gene M. Winter, Senior Research Associate
LaVerna M. Fadale, Research Associate
Eric Beamish, Research Associate
Vernon Beuke, Research Assistant
Carol Adomiak, Editorial Assistant
Janene Gargiulo, Editorial Assistant

STEERING COMMITTEE MEMBERS

Robert Bruce
Professor of Extension Education
Cornell University

Kenneth T. Doran
Provost for Vocational and
Technical Education
State University of New York

William Drake
Professor of Agriculture and
Occupational Education
Cornell University

John Henderson
President
Jefferson Community College

JoAnn S. Hinton
Director, Cooperative Education
and Placement Services
Villa Maria College of Buffalo

Earl Lowell
Assistant Dean for Instruction
Rockland Community College

Peter B. Martin
Dean of Students
Hostos Community College

Charles W. Meinert
Associate in Higher Education
New York State Education Department

Lawrence Monaco
Dean
Dutchess Community College

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* Slide set and audio cassette narration included only in official Institution copy.

INTRODUCTION

The Reality-Based Evaluation Portfolio was produced to assist post-secondary occupational educators in the conduct of local program evaluation efforts. The content of the Portfolio is not subject-matter specific in order to be applicable to the widest variety of educational programs and projects. Adaption rather than adoption is emphasized recognizing the existence of local philosophical and operational variables.

Early editions of the RBE Guidebook presented the program evaluation process in three formal phases with worksheets and procedural guidelines for each phase. These publications encouraged the local evaluator to select whatever organizational elements were most meaningful to local staff members conducting the evaluation. In a real sense they presented a do-it-yourself, self-help approach to evaluation; a recommended design was presented, but the final scope and format were subject to local choice.

This approach has been maintained and strengthened in the present publication. The adaptability of RBE has been further demonstrated by providing additional options for modifying the process itself and by giving more detailed examples of its application. It is hoped that the RBE model and its support materials in this Portfolio will facilitate carrying out an evaluation by removing some of the mystery while providing a structured flexibility that allows local priorities and professionalism to shape the final product.

This publication is organized as follows: introductory materials, the RBE Guidebook, RBE case studies and orientation materials. The Guidebook section of the portfolio presents rationale, process, illustrative applications of the three phase approach, design materials, and supplementary topics. The case studies section provides detailed examples of actual adaptions of the RBE system. At least one copy of the Portfolio distributed to each campus includes a set of slides and narrated cassette tape designed to be used locally in orienting staff members to the RBE approach. Additional copies of the Portfolio may only include the script of the tape narration.

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The RBE process represents a consensus of the knowledges, attitudes, and experiences of the project staff and cooperating college staff members developed during the three years of the project. The project staff is appreciative of the time and effort extended on behalf of the project. A part of RBE rightfully belongs to the following educators:

Alfred Agricultural and Technical College

Ronald Cushman

Bronx Community College

Constance Lerner

Broome Community College

Carl Brunner
John Feldstein
Joseph Gay
David Kenien
Robert Newcomb
Joseph Peone
Richard Peters
Robert Reid

Canton Agricultural and Technical College

Roy Bixby
Patrick VerSchneider

Cayuga County Community College

Raymond B. Cooke
Ester Orioli

Clinton Community College

Thomas Marston

Coblsekill Agricultural and Technical College

Charles Merrill

Community College of the Finger Lakes

John Chipermbere

Corning Community College

Hans P. Appelt
John Levanduski
Joseph Spitzer

Delhi Agricultural and Technical College

Wilbur M. Farnsworth
Roland Groppe
Dan Moskwa

Dutchess Community College

Matthew P. Fitzgerald
Fred Galt
Carol Hendrickson
Lawrence H. Monaco

Educational Opportunity Center, Syracuse

Robert McKinnan
Robert A. Mullane

Educational Opportunity Center, Troy

John DeNicolo

Erie Community College

Norman Cates
Edward G. Fix
George A. Lankes

Farmingdale Agricultural and Technical College

Robert Mitchell
Richard Robinson

Fulton-Montgomery Community College

Keith Dolbeck
Alfred Mastrangeli
Robert Osborne

Hilbert College

Steven Golen
Adele G. Nowak
Sue Stanley

Hostos Community College

Harvey Harth
Daisy Laure
Peter B. Martin
Robert Tyler
Rosalina Velez

Hudson Valley Community College

Paul F. Goliber

LaGuardia Community College

Flora Mancuso
Audrey McEvans

Monroe Community College

Elizabeth B. Gennarino
Don Litzinger
John Lloyd

Morrisville Agricultural and Technical College

John F. Caezza
Richard Chapman
Donald F. Jones
Thomas Jordan

New York City Community College

Carl E. High
Joseph Ryan

Niagara County Community College

R. J. Cinelli
Carl Heintz
G. W. Jaeger
F. Robert Kenyon
Jerry Repetski
E. J. Thomas

North Country Community College

Sunny Pek-Ho Oey
Gail Rogers Rice

Onondaga Community College

Dorothy Kelly

Queensborough Community College

Judith Barbanel
Sandra Seltzer
Harold J. Smolin

Rockland Community College

Debra Knapp
Earl J. Lowell
James Murtach

Schenectady County Community College

Raymond Castillo
Robert Holmes
Cathleen Real

Tompkins-Cortland Community College

Dawn R. Cooper
Carl Haynes
Thomas Mecca

Trocaire College

Ann Bieneman
Mary Marasco
Marian Myers
Sister Mary Ernestine Downey
Sister Mary Carmina

Ulster County Community College

Walter Hopkins

Villa Maria College of Buffalo

JoAnn S. Hinton
James Manno
Frank Schreckenberger

Westchester County Community College

Joan Hopf

RBE Guidebook

RATIONALE AND MODEL

What is Program Evaluation?

Program is an inclusive rather than a delimiting term. An educational program can be defined as an organized set of activities designed to result in specified outcomes. There are instructional programs, service programs, projects and curricula. A program is also a summary term that refers to the total interaction of its many components:

--- student performances, knowledges and attitudes

--- personnel performances, knowledges and attitudes

--- procedures and processes

--- services and products

--- instructional strategies and materials

Program evaluation focuses upon component sequences and relationships as they interact in the educational process and seeks answers to the "why or why not" as well as to the "what" questions.

Occupational programs are usually evaluated to determine <u>what</u> happened; for example, the number of graduates employed or the number of students that demonstrated certain skill proficiencies. This is product or summative evaluation. Formative or process evaluation focuses upon the program activities and procedures to determine <u>why</u> or <u>why not</u>. Program evaluation implies doing both formative and summative, and relating the processes to outcomes.

Why Evaluate?

Evaluation is motivated by many factors---economic, political, administrative, programmatic, and educational. Evaluation can be threatening and the motives misunderstood. Program evaluation however should be directed towards improving the program and serve as evidence that professional educators are actively concerned with quality and accountability.

Evaluation should be approached with a positive attitude. An important first step is that motives be examined and clarified in order to overcome or reveal a biased mental set. Unless the proposed evaluation is a one-person effort, a pre-evaluation planning session is recommended to gain consensus of involved staff members regarding the purpose or motive for the evaluation effort. Evaluation may carry with it threats of personal intimidation and/or suspicions of being asked to testify against one's self. Valid information cannot be collected in a context of distrust and defensiveness.

Human relations concerns recommend a pre-evaluation meeting. Union rules may require it as part of the negotiations process.

What is "Reality?"

The "reality" in which we work is different for each of us. Consequently the "Reality-Based" program evaluation model is based on several assumptions:

1. Most educators are continually evaluating program efforts, but not necessarily formally or comprehensively.
2. If local program evaluation efforts are requested, the performance of the evaluation should become a recognized professional responsibility, but is often assigned as an additional task.

3. All evaluation efforts fall short of a mythical ideal evaluation, but all evaluation efforts should result in better information for decision-making.

4. Any evaluation process should be adapted to the reality of the local situation.

5. Evaluation must be concerned with processes and interim outcomes as well as end of program results because educators want to know why things happened in addition to what happened.

6. The clarification of program objectives is the basis from which an evaluation effort proceeds.

The RBE model and procedural steps are presented as a common sense approach to program evaluation that ultimately provide for better informed decisions. These decisions may be directed towards:

--- modification of activity

--- revision of standards

--- refocusing of goals

--- reassessment of needs

--- expansion

--- modularization

--- curtailment

--- maintenance or reaffirmation of the existing program

Evaluation provides information. People make judgments.

REALITY-BASED EVALUATION is clarifying what we really intend to do, collecting information on what we actually are doing, interpreting how well we did it, and recommending what should be done in the future.

Evaluate What?

The Reality-Based Evaluation Guidebook focuses on attainment of program objectives. Much has been written elsewhere about formulation of good objectives. In this system we see a program objective in its complete form as a statement of---*Who will do What by When and How Assessed.* A program objective may summarize groups of more specific instructional objectives. Similarly one or more program objectives can be summarized by a program goal.

Occupational program objectives can be written with at least two major foci:

1) student-centered, in terms of student performances, knowledges and attitudes, and

2) process-centered in terms of procedures, services, products developed or equipment provided.

A comprehensive set of program objectives will include statements in several of the following categories:

a) The acquisition of minimum sets of theories, concepts and knowledges in selected subject fields.

b) The acquisition and demonstration of minimum sets of skills, competencies or performances related to occupational tasks.

c) Positive attitudes or satisfaction towards study, work, and people.

d) Basic communication and computational skills.

e) Acquisition of job-seeking skills and knowledges.

f) Employment in a training-related field, if desired.

g) Credentialism.

h) Continued education or training.

i) Congruency of curriculum content and occupational field requirements.

j) Quality and quantity of services rendered.

The series of program objectives should outline the program and suggest data at certain time points along the way which support their attainment. The RBE model begins with program objectives. At the start, existing statements of objectives should be utilized rather than becoming involved in rewriting. The first phase of the RBE process will assist in the clarification of these program objectives. Experience has shown this to be one of the strengths of the model.

What is the Reality-Based System for Program Evaluation?

The essence of the RBE process is presented below:

Pre-Evaluation Phase

---Obtain consensus on the motives or purposes for the evaluation and enlist the cooperation of staff members in the planning process.

---Link the evaluation purposes to college mission statements or division goals.

---Establish the scope of the evaluation and identify potential barriers.

Phase I - Clarification

---List existing program objectives and the activities that will occur.

---Identify criteria and/or ways each objective will be evaluated.

---Submit the outline to a respected colleague or group acting in the role of an external evaluator to assist the clarification process.

Phase II - Data Collection

---For each clarified objective, determine and collect evidence related to the attainment of the program objectives.

Phase III - Interpretation

---Organize and compare the evidence to standards in order to make interpretations and judgments on the effectiveness of the program.

---Report recommendations to appropriate audiences.

The phases and steps of Reality-Based Evaluation system are presented in the following model. The circles identify activities or events that lead to the results of the evaluative activities shown by the squares. When an evaluation plan is being prepared for a non-operational program, activities usually begin with *IDENTIFYING NEEDS* and then proceed more or less sequentially through the model steps. When an existing program is being evaluated, activities begin with *CLARIFYING OBJECTIVES*.

Ideally the complete process begins once *NEEDS* have been identified through *INPUTS* from such sources as employers, educators, clientele and employment opportunities. A *PROGRAM* is developed to meet the individual and societal needs. After the decision to evaluate is made, Phase I leads to clarification of program objectives, activities and strategies. Phase II, identifies tasks, roles and procedures for collecting the *EVIDENCE* of objective attainment. Phase III produces *FINDINGS* which are considered against *STANDARDS*, leading to evaluative *JUDGMENTS* and *RECOMMENDATIONS* which are directed back to the program and program decision-makers. All possible information feedback loops are not shown on the model to avoid undue clutter and confusion. It is taken for granted, however, that each activity feeds backward as well as forward and that a constant process of adjustment occurs throughout the model as decisions are made at each subsequent step. A major tenet of Reality-Based program evaluation is that program adjustments are made as soon as data supported judgments are possible.

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THE REALITY-BASED EVALUATION PROCESS

Overview: Design

The RBE system for program evaluation begins when a) a program exists, and b) a decision is made to evaluate it. It has been purposely designed to be as flexible as possible within a general recommended structure. For each phase, an Evaluation Outline Form (EOF) is suggested as a work-sheet and alternate column headings are provided for structuring the evaluation programs within each phase. Certain column headings are recommended but the final selection of the appropriate design of the evaluation forms is a local decision, depending upon the completeness of the program objectives and local staff preferences for structure within the context of the program being evaluated.

Reproducible masters for basic forms and alternative column headings for the worksheets for each of the three phases are included in the Design Materials section*. This choice in worksheet design is intended to not only allow for uniquenesses of local situations but also enhance local staff ownership of the effort.

Time Dimension in Evaluation

This three phase structure implies a year-long time dimension from Planning (Phase I) through Interpretation (Phase III). However, a major tenet of reality-based program evaluation is that program adjustments are made as soon as data supported judgments are possible. At the end of Phase I the evaluator may have sufficient information to decide to seek a re-allocation of resources or perhaps stop the evaluation of what is

*Refer to page 42 for design of material.

and devote the effort to reassessing the need for the program.* Some objectives may be sequential, requiring that one or two be taken through the complete cycle before a third objective is begun. For example, a student-centered exit criteria objective may take two years to complete while an interim point skill objective or a process centered objective may be taken through the entire cycle in a few months.

The phases of RBE have a logical order but in practice the relationship is a series of feedback loops. The turnaround time will vary by the objective.

Phase I - Clarification

The essence of the Clarification Phase culminates with a realistic outline of what the program intends to do, how it will be done, and how it will be evaluated. Appropriate headings and columns used in the Phase I worksheet will vary depending on local situations and the comprehensiveness of the objectives that exist. The stated objective may contain the outcomes and/or criterion measures. There may be only one obvious activity. Consider the objective as stated and judge the extent to which the recommended columns will help clarify the objective and describe how it will be evaluated.

The choices for headings/columns in Phase I and relevant definitive or descriptive questions are as follows:

*A more extensive discussion can be found in the Supplementary Resources section.

Recommended Structure for Phase I Worksheet:

OBJECTIVES	ACTIVITIES	EVALUATIVE STRATEGIES	CLARIFYING QUESTIONS
What do we intend to accomplish? Outcomes?	What activities will actually take place to achieve the outcome of each objective?	How can the outcome be measured?	What would an external evaluator ask given the objective, activities and outcomes, and tentative evaluative strategies?

Optional Column Headings:

OUTCOMES	CRITERION MEASURES
What are our realistic intentions?	What specific task(s) will constitute successful achievement?

From experience in utilizing RBE the column headings *OBJECTIVES, ACTIVITIES, EVALUATIVE STRATEGIES* and *CLARIFYING QUESTIONS* are generally recommended for Phase I. However it is acknowledged that other headings may have utility. The best choices are those that make the most sense to the user in terms of organizing and planning the local evaluation.

The Phase I worksheet or Evaluation Outline Form (EOF-1) guides the user through a process that results in a clarified outline of the program. This may be undertaken by one person but it is suggested as a group or staff activity. It assumes that program objectives exist or can be identified, at least tentatively, within a reasonable short time.

The danger at this point is that all available time will be used in developing a "perfect" objective. It is recommended that the user take the objective "as is" and proceed.* Revisions will undoubtedly be made as reality-based program outline is completed.

The obvious danger of the self-fulfilling prophecy, inherent in locally performed evaluations, becomes acute during this clarification process. In addition to beginning with the program objectives that exist, the role often played by an external evaluator, *CLARIFYING QUESTIONS*, is recommended to combat internal bias. For example, upon completion of column headings *OBJECTIVES*, *ACTIVITIES*, and *EVALUATIVE STRATEGIES*, an "outsider" might ask questions such as these:

--- Are the activities and program expectations feasible?

--- Are the objectives clear?

--- Is there a time sequence inherent in the objectives and/or activities?

--- Are the committed resources adequate to the task?

--- Are there better evaluative strategies?

In a real situation other questions will come to mind. Responses to these questions may encourage further clarification of the program outline. The role of external evaluator can be assumed by, among others, a trusted colleague, a dean or department chairman, or a technical advisory committee. Proper use of this column will enhance the credibility and the findings of the total evaluation effort. Its use is strongly recommended.

*The section, Supplementary Topics, presents one method for writing program objectives.

Phase II - Data Collection

The information from Phase I leads directly to Phase II where data collection is operationalized. The objectives for Phase II can now be restated, as appropriate, in the form of *WHO* will do *WHAT* by *WHEN*, drawing on words, phrases and concepts from several of the Phase I columns. The opportunity for local design choices is again part of the system. The appropriate choices will flow from the Phase I experience and the local situation.

The following column headings are presented as choices in the design of the Phase II Evaluation Outline Form (EOF-2).

Recommended Structure for Phase II Worksheet:

CLARIFIED OBJECTIVES	EVIDENCE	SOURCES-PROCEDURES-PERSONNEL-TIME
Who (students, staff, others) will do What (knowledges, attitudes, performances) When (interim time points, exit points, after exit points).	What evidence can be obtained to determine attainment of objectives?	Where can best information be found in terms of evidence? What instruments will be needed? What kinds of information already exist? How can it be collected? Who can assist? When will the desired information be needed?

Optional Column Headings:

CLARIFYING QUESTIONS	QUALITY CONTROL OR MONITORING CONSIDERATIONS
What should an external evaluator ask, given the objectives and tentative evaluative strategies?	What is actually taking place? What changes are occurring during implementation? How are changes affecting programmatic factors?

EVIDENCE, CLARIFIED OBJECTIVES, SOURCES-PERSONNEL-PROCEDURES-TIME and if not previously used in Phase I, *CLARIFYING QUESTIONS* are generally recommended. *QUALITY CONTROL* or *MONITORING CONSIDERATIONS* may be related to the time dimension and may be especially useful when attainment of program goals depends on achievement of short-term or sequential objectives.

The task in Phase II is to link the *CLARIFIED OBJECTIVE* with the specific evidence that will be collected, noting when the evidence is needed and the responsibility for carrying the process through to completion. Some find Phase II works best as a staff assignment. One program objective from Phase I may be broken into several more objectives, each linked to data to be collected at different time points by varying staff members as appropriate. In cases where the program has been well established and organized in a modular format with student goals and proficiencies identified, Phase II has been used in place of Phase I, merging the *CLARIFYING QUESTIONS* with the *CLARIFIED OBJECTIVES, EVIDENCE,* and *SOURCES-PROCEDURES.* The *QUALITY CONTROL* and *MONITORING CONSIDERATIONS* are alternatives that may be used to observe and note changes that occur during implementation. This can be accomplished under other columns but a local situation may warrant special emphasis.

Phase III - Interpretation

The culmination of the evaluative process is Phase III, Interpretation. It is here that judgments are made and recommendations formulated for improving the program. The following column headings are presented as choices in the design of the Phase III Evaluation Outline Form (EOF-3).

Recommended Structure for Phase III Worksheet:

OBJECTIVES	FINDINGS	JUDGMENTS AND RECOMMENDATIONS
These are carried forward from previous phases in some form as reference only.	How can the data be summarized and/or synthesized into most meaningful findings?	To what extent is the program effective? What modifications should be considered? What questions are still unanswered? Which components of the program merit further study? How can the client, staff, program and institution benefit from what has been learned?

Optional as to Placement in Structure but Recommended for Use as Deemed Most Appropriate:

STANDARDS
What are acceptable levels of performance? Do the standards approximate those required for job entry level? Are there several levels of standards reflecting several levels of competency or occupational goals?

In order to attain meaning for evidence collected during Phase II, the data are synthesized or interpolated as *FINDINGS*. The program objectives can be viewed in terms of intent and the findings seen as what actually resulted. *STANDARDS* provide criteria to which findings may be compared for making *JUDGMENTS* and *RECOMMENDATIONS*. The standards may be internal to the institution, program, course or be derived from an external source such as task analyses, employer requirements, or examinations for licensure.

Some staff members feel that standards should be identified before the program begins. Others feel that standards are implicit in well written objectives. The use of standards as a yardstick to compare performance is recommended, if standards other than "the best we can do" can in fact be agreed upon.

Unlike the physical sciences, there are very few questions in education where the evidence offers conclusive proof beyond a shadow of a doubt. More often the findings are based upon multiple indicators that point to probable directions. The final judgments and recommendations often must be made by one person but a group discussion of possibilities may result in better recommendations and enhance the probability that the recommendations will be acted upon.

Typically Phase III results in one or more statements on the relative degree of satisfactory objective attainment. Equally important, judgments and recommendations may be related to the quality of the data collection instruments, the scope of the evidence collection, the appropriateness of the instructional materials and equipment, the subject matter content, and the pre-requisite skills and attitudes of students entering the program.

An evaluation report that does not contain recommendations such as these may be just what the staff feared at the outset, an assessment of effectiveness rather than an effort directed at program improvement.*

Facilitating the Evaluation Process

One person evaluations are possible but as long as improvement of instruction is the goal, staff involvement and ownership is crucial to subsequent implementation of evaluation results. In many situations a department chairman or other administrator is facilitator of an evaluation effort primarily conducted by a program staff evaluation team.

If well managed such an evaluation can assure an experience which is beneficial both in the immediate outcomes it achieves and the attitudes it instills in participants to follow through on present and future evaluation efforts.

The team facilitator can play a crucial role in assuring that a well conceived, planned and managed evaluation will occur. The following outline of activities is presented as a guide for facilitating the evaluation process.

Facilitation Activities

Pre-Evaluation Phase

Clarify and share with staff or determine through group process the purpose(s) or motive(s) for undertaking an evaluation effort. (For detail see, pgs. 1-3 and 29).

Process: Staff meeting(s) and written communications. Time element: 1-3 weeks.

*The section, Supplementary Topics presents an approach for writing reports.

Facilitation Activities

Evaluation Phase I As Modified to Fit Local Efforts

Using course objectives, college mission statements, and any other available sources, determine, write, reach consensus, select, borrow, etc. the objectives of the program to be evaluated. (For detail see, pgs. 4, 5, 17, 28-30). If objectives do not come easily begin with activities and/or outcomes and work toward clarified objectives

Process: Team meeting(s), individual work sessions with feedback and group consensus. Time element: 1-3 months.

Evaluation Phase II

Once clarified program objectives have been developed, the next decisions involve determining the best available evidence and procedures for its collection, such that judgments can be made on the degree of objective accomplishment. (For detail see, pgs. 12, 32, & 33).

Process: Team meeting(s), individual work, administrative and clerical support. Time element: 2-4 weeks.

Adapt or develop data collection instruments, collect data and compile findings or results. (For details see pg. 15 and examples on pgs. 20, 23, and 26).

Process: Team meeting(s) and staff/team consensus on procedures and instruments. Use of clerical and support staff assistance is especially valuable here. Time element: 2-4 months or various time sequences depending on availability of data

Facilitation Activities

Evaluation Phase III

Compare findings with standards, interpret results and formulate judgments and recommendations. (For detail see pg. 34 and local decision structure.)

Process: Staff review, discussion and consensus; team reports.
Time element: 2-4 weeks.

Post-Evaluation Phase

Arrange for preparation of appropirate reports, documents and reaction papers and disseminate internally and externally as needed. (For detail see pgs. 15, 16, 34.)

Process: Procedure(s) with most impact for the local situation. The uses of the evaluation results involve a number of judgments best made by local staff. Advisory groups can also assist in the process.

It is critical that the facilitator not let the process bog down at Phase I, writing objectives. The best statements that can be worked through in a reasonable block of time should be identified as quickly as possible and the forward momentum of the evaluation maintained. Improvements can be made subsequently. If conditions dictate that a facilitator or team leader needs to proceed alone, direct faculty involvement should at least be sought at Phase I and Phase III. The technical aspects of data collection may be efficiently performed by clerical and support staff or specialists guided by ideas and directions generated from the instructional staff. For example, in developing and administering a questionnaire the preliminary items, interpretations of results and recommendations should come from program staff but final editing, copying, mailing and tabulation can be done by others.

ADAPTING THE RBE PROCESS

When Phase I is begun, one of three common situations may exist:

a) Objectives exist in the form of student-centered skills or performances;

b) A list of program objectives has not yet been formulated;

c) Objectives exist in the form of processes or procedures.

The first situation, objectives existing in the form of student-centered skills, performances or competencies, is essentially curricular. It may include a specific component or course, or it may be comprehensive having a broad programmatic framework and sequential components or courses. A sample adaptation is given for a sequence in accounting.

The second situation, an absence of objectives, may exist when a new program is being planned. Beginning a new fire protection program is included as an example of adaptation to this situation.

The third situation, objectives in the form of processes, is addressed in a sample adaptation of a placement service program.

In each example, the approach is completed through Phases I, II and III. Accompanying text introduces each phase and the sample is shown using appropriate headings, columns and format.

Application A: *Objectives exist in the form of student-centered skills or performances.*

The following application example is taken from a degree program in Accounting. The faculty have met several times and have written broad program objectives that encompass elementary accounting, income and taxation, intermediate accounting, business law, principles of management, banking and finance, business communications and principles of organizational behavior. The evaluation plan would be completed for all objectives but the specific objective used in this example focuses upon skills used in double-entry accounting systems. The cognitive measure is a practice set in accounting that summarizes techniques and applied knowledges.

The objective in Phase I includes a description of the activities (two semesters of coursework in Accounting 193 and 194), the intended outcome (the ability to apply system) and the evaluative strategy (simulated application). Therefore, three columns for the Phase I form are adequate for this situation. The criterion column specifies the performance measure (practice set). The column for clarifying questions will lead the evaluator to collect evidence beyond a simple statement of numbers or percentage of students that passed the test.

Program Accounting

EVALUATION OUTLINE FORM: PHASE I - CLARIFICATION EOF-I

Program Outline

Evaluators

OBJECTIVES	CRITERION MEASURES	CLARIFYING QUESTIONS
What do we intend to accomplish? Outcomes?	*What specific task(s) will constitute successful achievement?*	*What would an external evaluator ask given the objective, activities and outcomes, and tentative evaluative strategies?*
After completion of Accounting 193 and 194, all accounting majors will demonstrate the application of double-entry modified accrual accounting systems to a simulated public organization.	Demonstration of ability to complete a practice set of accounting records for an entire accounting period.	Are all accounting students required to meet the criterion? Are there prerequisites? What are the chances of success? Do internal standards of program conform to or accurately reflect externally accepted practices?

In this application to Phase II, the clarifying questions in Phase I led to a more comprehensive objective by identifying the need to incorporate prerequisites before undertaking the practice set. The identification of these prerequisites as a staff responsibility was noted in the Sources-Procedures-Personnel-Time column. Similarly, a clarifying question from Phase I identified the need for program alternatives for those students not achieving the criterion.

Phase II delineates the personnel and related roles in the evaluation effort. Projections of time for completion of tasks are identified, thereby allowing for sequential program adjustment as warranted.

Program Accounting

EVALUATION OUTLINE FORM: PHASE 2 - DATA COLLECTION
Management Plan

EOF-2

Evaluators _____

CLARIFIED OBJECTIVES	EVIDENCE	SOURCES - PROCEDURES - PERSONNEL - TIME
WHO (students, staff, others) will do WHAT (knowledges, attitudes, performances) by WHEN (interim time points, exit points, after exit points).	*What evidence can be obtained to determine attainment of objectives?*	*Where can the best information be found in terms of evidence?* *What instruments will be needed?* *What kinds of information already exist?* *How can it be collected?* *Who can assist?* *When will the desired information be needed?*
After completion of Accounting 193 and 194, all accounting students will have satisfied prerequisites to begin the practice set, and will demonstrate the application of double-entry modified accrual accounting systems to a simulated public organization.	Instructor certification of prerequisites for beginning practice set satisfied. Reported grade on practice set.	Department instructional staff will reach group consensus to identify prerequisites for beginning the practice set by the end of the first semester or at the conclusion of Accounting 193. Department instructional staff will, by the end of first semester, determine past failure rate based on class records of previous two years. Subsequent program recommendations will be made by the staff concerning students Accounting 193 and 194 not achieving criterion. Students will complete of practice set prior to acceptance in Accounting 293.

The standard in Phase III (90% success rate) resulted from the examination of class records and subsequent consensus by department staff. Based on these data the success rate was perceived as realistic. The findings show that the standard was not achieved, therefore the recommendation was made to re-examine and determine effectiveness of the prerequisites needed for the practice set. It was also recommended that an instructional model be developed to address the needs of students not successfully achieving the criterion. As this effort progresses, a judgment may be made to include student feedback as a dimension in the examination of prerequisites and module content.

Program Accounting

EVALUATION OUTLINE FORM: PHASE 3 - INTERPRETATION
Evaluation Conclusions

EOF-3

Evaluators

OBJECTIVES	FINDINGS	STANDARDS	JUDGMENTS AND RECOMMENDATIONS
These are carried forward from previous phases in some form as reference only.	*How can the data be summarized and/or synthesized into most meaningful findings?*	*What are the acceptable levels of performance? Do internal standards reflect those external to the program?*	*To what extent is the program effective? What modifications should be considered? What questions are still unanswered? Which components of the program merit further study? How can the client or students, staff, program and institution benefit from what has been learned?*
Demonstrated competency with practice set.	82% success rate of students completing practice set. 100% of those attempting practice set had satisfied its prerequisites.	90% success rate--based on first semester department study.	Staff re-examine prerequisites for practice set in light of findings. Module of instruction be developed and offered to students during mid-semester break and summer session for those failing to achieve criterion. Staff continue evaluation of course objectives to determine their current validity in terms of changing external standards.

Application B: A list of program objectives has not yet been formulated.

In this example the program objectives are not available. The initial step in Phase I can be a listing of on-going activities in the program or a listing of outcomes intended for the program. This process will lead to formulation of objectives and the plan for evaluation. Assume in this case, the program to be a Certificate in Fire Protection, with an overall goal of "To offer inservice education for entry level firemen".

In the sample, the feasible starting point was a listing of activities with identification of relevant outcomes for the activities. Once activities and outcomes were delineated, clarifying questions pointed to potential basic program deficiencies in addition to the processes that needed further clarification. Program objectives evolved from the clarifying questions and were seen as required for the planning stage. Although the sequencing of column headings can be varied as appropriate, the end result of working through Phase I is a listing of higher priority objectives that an evaluation effort should address.

Program Fire Protection

EVALUATION OUTLINE FORM: PHASE I - CLARIFICATION EOF-I

Evaluators

ACTIVITIES	OUTCOMES	CLARIFYING QUESTIONS	OBJECTIVES
What activities will actually take place to achieve the outcome of each objective?	*What are our realistic intentions?*	*What would an external evaluator ack given the objective, activities and outcomes, and tentative evaluative strategies?*	*What do we intend to accomplish? Outcomes?*
a) recruit students. b) offer courses, FP140, 141, 142. c) arrange for off-campus learning centers. d) enlist part-time off-campus instructors. e) organize program advisory group.	Students will acquire basic skills in Fire Protection. Appropriate facilities secured. Instructors hired. Active community group organized and assisting in program. 25 new students enrolled each semester.	What skills or group of skills are appropriate for each course? Are instructors qualified in terms of criteria set by institutional policy and needs within content area? What are specific ways advisors will help? What qualifications should these advisors possess?	To develop a list of minimum proficiences for each course. To identify the additional proficiencies learned in off-campus centers. To attain competent and qualified instructors. To effectively utilize the expertise and perceptions of the advisory group.

In the sample, Phase I was used as a planning phase for a new program. The decision was made to state the first year's objectives in terms of faculty efforts to develop and validate intended student proficiences or performance standards. The Phase I objective presented in Phase II reflects local choice of program priority.

In the design of the Phase II form, the criterion measures heading was found to be useful in specifying the validation process. Student grades on the proficiency examination are to be used primarily as part of the validation evidence. Although not selected, a column for "monitoring" of changes might have been utilized. In this instance these changes were integrated into the final phase.

The example shows the adaptability of the RBE system to local situations, even when the evaluation effort becomes essentially a curriculum development process.

Program Fire Protection

EVALUATION OUTLINE FORM: PHASE 2 - DATA COLLECTION
Management Plan

EOF-2

Evaluators _____

CLARIFIED OBJECTIVES	CRITERION MEASURES	EVIDENCE	SOURCES - PROCEDURES - PERSONNEL - TIME
Who (students, staff, others) will do What (knowledges, attitudes, performances) When (interim time points, exit points, after exit points).	*What specific task(s) will constitute successful achievement?*	*What evidence can be obtained to determine attainment of objectives?*	*Where can the best information be found in terms of evidence?* *What instruments will be needed?* *What kinds of information already exist?* *How can it be collected?* *Who can assist?* *When will the desired information be needed?*
Department faculty will complete a list of minimum proficiences for FP140, 141 and 142 by end of first semester.	Community advisory group supplemented by professional and volunteer firemen will certify minimum level proficiencies.	Criteria for certification by advisory group. Use of student grades, success in advanced course and/or follow-up in employment situation.	Advisory group and faculty: a) review of existing programs at other colleges. b) identification of certification criteria. c) item analysis of student performance. d) design plan for collection of on-job performance evaluation by employers.

In this application, the results of Phase I were objectives that reflected the efforts to inaugurate a new certificate program. At the point in time assumed, the focus of these objectives is generally procedural although their achievement results in the basic information needed to systematically evaluate future student performances. The faculty chose to spend a year developing student performance criteria rather than to evaluate student performances on "assumed" criteria. The information contained in Phase III provides the basis for evaluation efforts in a subsequent year.

The question of program standards had not been previously addressed. The choice of a standards column in Phase III encouraged the faculty to formulate tentative external program standards that will apply to the program in the future. The findings and recommendations point to additional refinements that will be needed before evaluation of student performance can be viewed with reliability.

Program Fire Protection

EVALUATION OUTLINE FORM: PHASE 3 - INTERPRETATION EOF-3

Evaluation Conclusions

Evaluators

OBJECTIVES	STANDARDS	FINDINGS	JUDGMENTS AND RECOMMENDATIONS
These are carried forward from previous phases in some form as reference only.	*What are the acceptable levels of performance? Do standards exist external to program?*	*How can the data be summarized and/or synthesized into most meaningful findings?*	*Is the program effective? Why or why not? What modifications should be considered? What questions are still unanswered? Which components of the program merit further study? How can the client, staff, program and institution benefit from what has been learned?*
Development of list of minimum proficiences.	Performance of students in off-campus work-study situations rated as satisfactory by agencies. Graduates of program will be rated as competent by employers.	Minimum proficiences FP140 and 141 were validated. Minimum proficiences for FP142 were not completed in time for total verification process. Analysis of student performance indicates some to be out of sequence.	Minimum proficiences for FP142 should be re-examined to obtain better sequencing. Monitoring of student performance in work-study situations to refine identified proficiencies. Follow-up study of graduates be initiated as soon as feasible, or within a year.

Application C: *Objectives exist in the form of processes or procedures.*

In this application, we assume that the college is embarking on a new placement service program. The objective has been formulated by the administration. After reviewing the Phase I format choices, activities and evaluative strategies were chosen and the information completed as a staff group effort. The external clarifying questions role was played by a local employment service counselor who not only actively supports the new service but was advising the Dean on the purchase of materials and equipment that are part of other program objectives. The questions listed in this column will lead the group to consider collecting additional data or evidence that was not implicit in the process objective.

Program Placement

EVALUATION OUTLINE FORM: PHASE I - CLARIFICATION EOF-I

Program Outline

Evaluators

OBJECTIVES	ACTIVITIES	EVALUATIVE STRATEGIES	CLARIFYING QUESTIONS
What do we intend to accomplish? Outcomes?	*What activities will actually take place to achieve the outcome of each objective?*	*How can the outcome be measured?*	*What would an external evaluator ask given the objectives, activities, outcomes, and tentative evaluative strategies?*
To provide placement services for all occupational education students.	1) Placement coordinator will assemble list of job opportunities by start of second semester. 2) Placement coordinator will provide group and individual vocation counseling throughout the year. 3) Coordinators will provide module of instruction in job-seeking skills. 4) Placement coordinator will conduct follow-up survey of graduates. 5) Placement coordinator will arrange on-campus interviews.	1a) Faculty advisory committee will review list of job opportunities. 1b) Faculty will present a list of jobs for which the students are prepared. 2) Student feedback. 3) Student evaluation forms. 4) Follow-up data. 5) Student and employer feedback.	What is the frequency and extent of placement service use by students? How current is list of job opportunities? Do students use the list? How? Frequency of use? What is the frequency and extent of use of the on-campus interviews by students and employers?

In the adaptation of the placement process objective to Phase II, the original program objective has been treated as a goal and the clarified objectives flow from Phase I activities. This transformation of activity to objective is not uncommon when working with process objectives. The remaining two columns specify the data collection process and reflect the clarifying questions column from Phase I. The time of the data collection is noted to allow for mid-program modifications if deemed appropriate.

Program Placement

EVALUATION OUTLINE FORM: PHASE 2 - DATA COLLECTION — EOF-2

Management Plan

Evaluators

CLARIFIED OBJECTIVES	EVIDENCE	SOURCES - PROCEDURES - PERSONNEL - TIME
WHO (students, staff, others) will do WHAT (knowledges, attitudes, performances) by WHEN (interim time points, exit points, after exit points).	*What evidence can be obtained to determine attainment of objectives?*	*Where can the best information be found in terms of evidence?* *What instruments will be needed?* *What kinds of information already exist?* *How can it be collected?* *Who can assist?* *When will the desired information be needed?*
Placement coordinator will develop and maintain a list of part-time and full-time job opportunities. Coordinator provides on-going group and individual career counseling services. Coordinator will arrange on-campus interviews during second semester.	Job listings will be compared by the faculty advisory committee to the State Employment Service Job Bank computerized listing. Coordinator's bi-monthly report: number of clients or students served, sessions, referrals, etc. Student opinion survey. Job placement record. Maintenance of up-to-date job clearinghouse for students.	Part-time list available within 90 days of coordinator's employment --- full-time list available by April 15. Comparison to take place within 30 days of availability. Bi-monthly progress conference with Dean of Student Services. Student survey conducted by Dean's office in March --- survey developed and tested by coordinator with assistance from Counseling Center staff. On-going review by Dean and Advisory Group.

The example assumes that time has passed and the evidence as noted in Phase II has been collected. The Phase III form has been used to briefly outline the important findings and recommendations. The complete recommendations will be made subsequently in a narrative summary report. Interim findings have already been reported to the appropriate staff members.

For this example, only two headings were used. Standards was not used because the evaluators felt that realistic standards did not exist for this new program. Standards may be used in the coming year based on outcomes of the current year.

The recommendations are concerned with program improvement and point to ways in which both the program may be modified and the on-going evaluative evidence be improved. The recommendation that the coordinator increase office hours and reduce employer visits will be made to the Dean and the coordinator supported by the student survey data.

Program Placement

EVALUATION OUTLINE FORM: PHASE 3 - INTERPRETATION EOF-3

Evaluation Conclusions

Evaluators

OBJECTIVES	FINDINGS	JUDGMENTS AND RECOMMENDATIONS
WHO (students, staff, others) will do WHAT (knowledges, attitudes, performances) by WHEN (interim time points, exit points, after exit points).	*How can the data be summarized and/or synthesized into most meaningful findings?*	*To what extent is the program effective? What modifications should be considered? What questions are still unanswered? Which components of the program merit further study? How can the client, staff, program and institution benefit from what has been learned?*
Part-time job list. Full-time job list. On-going group and individual counseling. On-campus interviews.	Advisory team judged list to be adequate. Advisory team added to and modified list. Work load acceptable. Dean recommended coordinator re-appointment. Student opinion survey was generally favorable but critical of restricted office hours. Number and placement record acceptable. Student feedback requests an expansion of this service.	The job lists be continually updated based upon placement records. Jobs be classified by student major program titles and cross-referenced to secondary programs as appropriate. An additional job list be developed for community volunteer work opportunities. Work-study funds be utilized to support additional clerical help for coordinator. Coordinator reduce off-campus employer visit time and increase office hours. Improve student opinion survey form to shorten and focus on access to information rather than overall opinion. Increase the number of on-campus interviews.

The RBE Concise Version

Most evaluations require a fairly detailed approach such as the three-phase process presented previously in this Guidebook. There are numerous situations however, which may not require such exhaustive treatment. The following represent instances where the process might be appropriately abbreviated:

1. When the evaluation requires reporting only on "What Happened" as the result of certain specific activities and information can be readily collected in simple pre/post or before and after categories.

2. When clear acceptable objectives already exist and the purpose of the evaluation is to determine the merits of selected program components.

3. When an obviously complex and lengthy evaluation could benefit from a quick overview evaluation conducted prior to implementation of a long-term effort.

Given the first situation, an evaluator might simply need to determine the number of students completing a program who are subsequently placed in related employment, or determine the average increase in student skill and level measured at two different time points. Determinations are purely quantitative in these instances and interpretations of why discrepancies exist, or why the findings came out as they do are either readily known or of no real concern.

However, evaluation findings that consist of simple numerical comparisons and fail to identify factors which influence program outcomes are of little use in prescribing improvement. Numerical record-keeping will normally fail in facilitating change directed toward program improvement. When the reporting of simple summative data is all that is required,

a detailed evaluation process is obviously unnecessary. The evaluator should be fully aware, however, of the strict limitations of such an abbreviated procedure and not be trapped into substituting convenience and brevity for the more exhaustive procedure demanded in most evaluation situations.

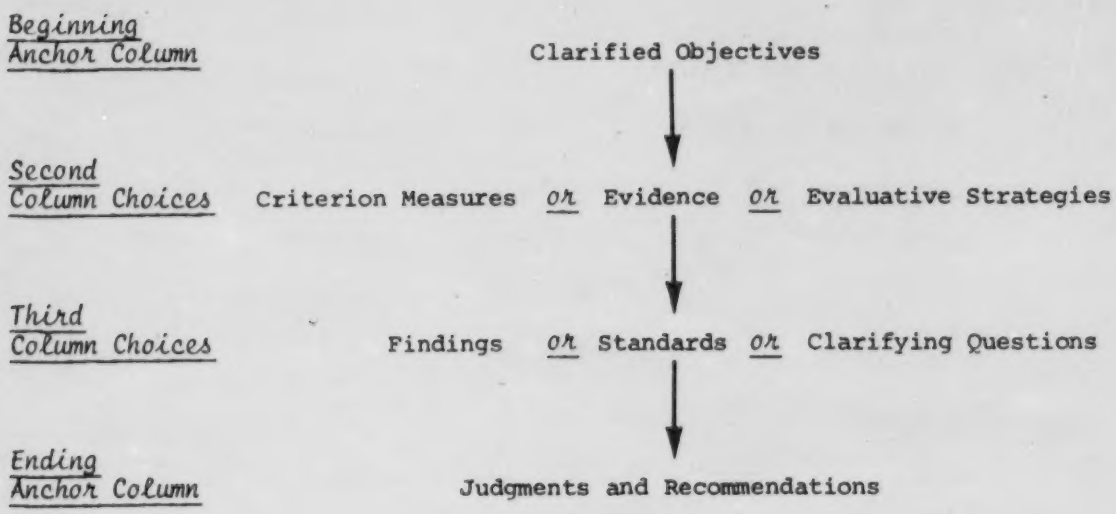
In the second situation, where clear, acceptable objectives already exist, it is likely that proceeding through the Phase I process may be unduly time consuming and procedurally unnecessary. In such situations a concise version of RBE, utilizing a single evaluation form with four column headings rather than the usual three-form approach may prove adequate to the task.*

The concise version can be composed of several combinations of conventional RBE information categories, but may also contain categories of the evaluator's own devising. The following examples present three such possibilities:

	Column 1	Column 2	Column 3	Column 4
1)	Clarified Objectives	Evaluative Strategies	Findings	Judgments/ Recommendations
2)	Clarified Objectives	Criterion Measures	Clarifying Questions	Judgments/ Recommendations
3)	Clarified Objectives	Evidence	Judgments/ Recommendations	

* (The same reproducible masters included in the RBE portfolio may be used to generate the one-form adaptation. The column headings provided in these materials should suffice in most concise version applications of RBE. If not, other more appropriate information categories can be invented to satisfy specific needs.)

It is suggested that the abbreviated adaptation be anchored in two information categories; clarified ojectives which have been clarified in terms of who will do what by when and judgments/recommendations derived from interpretations of the evaluation data. Utilizing this procedure, the choices open to the evaluator using standard RBE information categories can be diagrammed as follows:



The third situation may arise in such circumstances as planning a program, writing a proposal or outlining a total three-phase RBE effort. An overview evaluation in each such instance deals only with broad objectives, activities, outcomes and evaluative strategies. It is not intended to be exhaustive or conclusive. Its primary functions are to chart the general course and format of the more detailed successor, to anticipate the relative intensity of evaluation activities in different areas of concern, to assure comprehensiveness of the final effort and to predict the level of resources - personnel, time, money, materials, facilities - which the extended evaluation activity will consume. A concise version of the process provides an elemental sketch upon which the full version will be subsequently modeled. Its major worth lies in making preliminary discoveries which should assure a more speedy, accurate and successful final evaluation effort.

As an example an engineering technology faculty group has become concerned over enrollments and retention. Faculty discussions produced opinions and some evidence of failure rates in certain courses but consensus was not reached on the extent of the problem. This lack of internal agreement led to an overview evaluation from which more targeted evaluative efforts could be designed. The single form used in this example follows as an illustration of a concise version adaptation.

R.B.E. CONCISE VERSION

DEPARTMENT OF ENGINEERING TECHNOLOGY

CLARIFIED OBJECTIVES	SOURCES PROCEDURES PERSONNEL-TIME	FINDINGS	JUDGMENTS AND RECOMMENDATIONS
Who (students, staff, others) will do what (knowledges, attitudes, performances) when (interim time points, exit points, after exit points).	*Where can best information be found in terms of evidence? What instruments will be needed? What kinds of information already exist? How can it be collected? Who can assist? When will the desired information be needed?*	*What is actually taking place? What changes are occuring during implementation? How are changes affecting programmatic factors?*	*To what extent is the program effective? What modifications should be considered? What questions are still unanswered? Which components of the program merit further study? How can the client, staff, program and institution benefit from what has been learned?*
Department chairman will collect GPA retention, dismissal, probation, and withdrawal data from last year's seniors and this year's freshmen and seniors and produce summary data at end of each semester	*College records, placement records, follow-up survey of withdrawn students, Registrar, institutional research, placement director* *Two staff will develop follow-up survey for spring mailing - three staff members will assist chairman in working with college offices in organizing existing data*	*20% withdrawal rate constant for 3 classes* *25% dismissal rate for freshmen; 20% for seniors* *Average GPA increases .55 over two years* *75% of dismissals failed all technical courses* *75% of probation students failed all technical courses* *Follow-up survey found most left for other than fear of failure*	*Faculty examine admissions standards and admissions flyers* *Curriculum committee should re-evaluate freshmen technical course sequence relative to second year course* *Graduate rate of approximately 50% in two years is acceptable* *Recommend a faculty committee interview sample of students now in program* *Recommend placement office send follow-up survey to graduates on adequacy of preparation*

SUPPLEMENTARY TOPICS

Decision Options at the End of Phase I

As a result of completing the clarification process of Phase I the evaluator or evaluation team will have collected information, if only subjective opinions, and will want to modify the original program objectives and/or activities to some degree. However, if it is determined that serious discrepancies exist between what is actually occurring compared to what was thought to be occurring the decision to continue the evaluation process, i.e. go on to Phase II, may be legitimately questioned. At least two decisions may be available depending upon the severity of the discrepancies:

1) Decide to seek administrative assistance and/or approval for adjustments as needed and continue the evaluation process as the adjustments dictate.

EXAMPLES:

a) the budget allocation is insufficient to operate the program as intended and an amendment or additional allocation must be sought.

b) the equipment and/or supplies bid has been delayed causing a major change in the instructional methods planned.

c) administrative or personnel changes have resulted in a new program focus.

2) Decide to abandon the original evaluation plan and focus the effort on reassessing the need or purpose for the program.

EXAMPLES:

a) follow-up studies indicate low employment success for graduates.

b) enrollments are substantially lower than anticipated and transfer-out incidence is increasing.

c) after re-examination of the program during Phase I, the program faculty seriously doubt the validity of the objectives as they exist.

If the decision is made to reassess the needs or purposes (#2 above), a practical approach would dictate that information should be sought from at least three sources:

1) the students enrolled and potential enrollees;

2) the institutional commitments of human and physical resources that will exist separate from the program;

3) community needs and employment opportunities.

The procedures involved might include surveys, interviews and future planning techniques. The results are best estimates based upon the evidence that can be assembled. The evidence can then be the basis of program objectives and standards to be used in a future evaluation of the program. The RBE process can be adapted for this activity by selecting the appropriate column headings. An example of this adaptation is shown below.

Program Evaluation of Need

EVALUATION OUTLINE FORM: PHASE I - CLARIFICATION EOF-I

Program Outline

Evaluators _____

OBJECTIVES	ACTIVITIES	FINDINGS	JUDGMENTS AND RECOMMENDATIONS
To estimate student enrollment trends in next ten years.	Survey enrollment trends in similar programs at similar colleges. Discuss trends with SUNY central administration and SED. Sample survey of high school juniors/ seniors from primary feeder high schools. Review local recruitment procedures.	Anticipate stable enrollments. No growth anticipated statewide. Survey results show most potential students are unaware of the program. No special recruitment efforts underway for this program area.	Local enrollment decline is unique. Interview current students to learn how/ why they enrolled. Recruitment efforts should be undertaken by faculty, brochure developed and circulated.

Justifying the Program

The problem of justifying a program's existence is becoming an increasing concern. Faculty are being asked to think like administrators and eventually present evidence for their case. In order to help focus concerns leading to specific data collection activities, the chart below lists factors that can be considered in an "If-Then" question context. The numerical results will point to certain problem areas to be investigated, however caution is urged against any strict numerical interpretation. All items are not of equal weight or even operable for every program. The chart is designed to be used to develop a judgmental profile of concerns in a systematic way. The priority of the concerns must be added from the local context.

Question: If the program is continued, changed or terminated (select one), what is the estimate of impact in terms of the following:

Program Factor	Judgment Continuum: No Problem				Serious Problem
Student enrollment	5	4	3	2	1
Student retention history	5	4	3	2	1
Student completion history	5	4	3	2	1
Placement (if desired) history	5	4	3	2	1
Placement (if desired) in related field	5	4	3	2	1
General instructional effectiveness	5	4	3	2	1
Licensure (if applicable)	5	4	3	2	1
Program cost	5	4	3	2	1
Staff resources	5	4	3	2	1
Equipment resources	5	4	3	2	1
Facilities resources	5	4	3	2	1
Land use resources	5	4	3	2	1
Career program FTE	5	4	3	2	1
Supporting instructional FTE	5	4	3	2	1
Support services workload	5	4	3	2	1
Employment opportunities	5	4	3	2	1
Community/regional "uniqueness"	5	4	3	2	1
Social policy relationship	5	4	3	2	1
Program "prestige"	5	4	3	2	1
College mission/goal relationship	5	4	3	2	1

Toward Program Objectives

Phase I of RBE can be undertaken with nearly any statement describing intentions, missions, goals or objectives, and the process will implicitly force clarification. This is an approach to the formulation of objectives if none exist and the staff members choose to identify them before undertaking Phase I.

A recommended program objective statement consists of *Who will do What by When.* These statements should be a) more specific than a college mission or goal and b) statements that summarize the many instructional or performance objectives that may exist. We should keep in mind that if an objective is too general, the subsequent evaluative strategies or evidences will become too numerous with which to deal. If the objective becomes too specific, the list of objectives themselves will be unmanageable.

WHO are usually students or staff members. *WHAT* consists of activities and/or outcomes. *WHEN* is the essence of program evaluation. The *WHEN* can be at the start of the program, during the program, at the end of the program, or at a time point after exit. The following objectives illustrate:

a) All students will possess a minimum of elementary algebra skills at entrance to the engineering program.

b) After one semester of instruction all students will demonstrate knowledge of single entry and double-entry modified accrual accounting system.

c) At the end of one year all students will demonstrate a positive interest in pursuing a career in the business field.

d) At the end of four semesters 75% of the students will be seeking job placement.

e) All graduates of the program, if they desire, will be employed in a field related job within three months of graduation.

The worksheet operationalizes a process through which staff members as a group or individually may formulate program objectives.

WORKSHEET: Procedure for Developing Program Objectives

A. Program Title _____

B. 1) Review college goals or division mission statement. Select one.

2) Write phrase(s) that describe one or more program outcomes and that relate to the selected goal, using this format:

	Who	Will Do	What	By When
e.g.	Electronics students	will read and interpret	blueprints and schematics	by the end of the year
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____

C. 1) List the course concentrations, sequences, experiences that comprise the program for most students.

e.g.	6-hours science	10 weeks on-the-job experience	Accounting I, II, III
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

2) Review the concentrations and experiences listed in C.1. Write phrases that describe or summarize the intended student outcomes of each group of experiences. e.g. (WHEN) by the end of the nine-hour Electronics sequence (WHO) all students will have demonstrated the ability to (WHAT) read and interpret technical manuals, blueprints, service contracts, and trade journals in their speciality area.

D. Compare the phrases produced in both B and C. At this point, you have experienced conceptualizing objectives from two points of view; from the general goal and from the more specific course or instructional objective. The phrases should be similar or complementary. Assess the outcomes and choose your preferred approach---B, C, or a combination of both, and proceed to write phrases that summarize all remaining college goals that are relevant for your program.

NOTE: Regardless of the actual procedure used in writing program objectives, the results will be subject to revision and refinement as the evaluation process proceeds.

Evaluation Techniques and Instruments

A wide variety of techniques and instruments can be used to assess the various objectives and processes of an educational program. The challenge lies in selecting the best combination of techniques and/or instruments for each given activity. If the person(s) charged with the task of assessment has little experience or expertise in the area of program evaluation, it may be necessary to seek assistance in designing the evaluation strategy and developing effective measuring devices. If this route is chosen, the coordinator and/or program staff should work closely with the consultant to help develop an effective evaluation scheme for that particular program.

In designing any instrument or evaluation strategy with or without the help of consultants, the following guidelines should be kept in mind:

1. Although a variety of measuring devices and activities should be considered, selection of the best should be based on the particular group and circumstances with consideration given to:

    a) staff sensitivity or reluctance to evaluation.
    b) adverse reaction to excessive writing demands.
    c) type of activity being evaluated.
    d) time allocated to evaluation activities.
    e) need for specific evaluative data.

2. Instruments should be as brief as possible and reflect specific objectives and process variables.

3. Instruments must have clear instructions and be easily administered.

4. Items should be objective in nature whenever possible.

5. Confidentiality of individual responses should be assured.

6. The minimum amount of information needed should be collected for assessing the objective.

The following annotated listing of evaluative techniques and activities, while not exhaustive, represents common approaches utilized in program evaluation. All have merit when appropriately used and the order of listing should not be viewed as a priority ranking.

a) Informal Discussions: can provide process clues, useful in monitoring progress, danger of biased opinion, problem of confidentiality, may be needed in terms of morale.

b) Staff Meetings: much like (a) above but with constraints added by group attendance---useful for brainstorming and first level interpretation.

c) Observation: linked with (a) above, can be useful in clarifying a report unless the spy image is projected---most valuable as secondary motive.

d) Review of Existing College Records: a place to begin---usually more collected than can be made available---can be constrained by confidentiality and bureaucratic ownership.

e) Commercial Tests/ Surveys: question the validity for your purpose, value in the proven reliability and potential for comparisons between groups, guard against unwarranted interpretation.

f) Locally-Made Questionnaires and Surveys: time-consuming but sometimes the only way to specific indicators, need to be field-tested, should guard against leading responders to the desired answer, inexpensive per return.

g) Interviews: costly in time but allows depth of information, should be structured to maintain uniformity and assist in tabulation of responses, interviewing skill required, field-testing recommended.

h) Class Examinations/ Grades: more here than will be needed, problem is to choose the significant parts, the instructor must be the interpreter, tend to be time-point oriented measures of cognitive domain only.

i) Performance/ Proficiency Tests: costly to develop but perhaps the only way to measure application of knowledge; seek industry and union tasks analysis and entry competency levels.

The Report Format

The narrative report can take a variety of forms. Experience of the writer and known preferences of the reader are usually the controlling factors. In the absence of these factors, the final report can flow directly from the completed evaluation forms.

Most readers are interested in facts and brevity. The preference of the reader should be sought and followed if your goal in reporting is to communicate your findings and recommendations. If a preferred format is not known, the following is presented as one method. The reader is encouraged to adapt rather than adopt.

College Name
Evaluation Report Title

Identification -- College Mission Statement; Department of Program Goal; Program Title

Introduction or Background -- Narrative section that gives the reader a perspective and context and purpose or motive of the evaluation effort. This section may also list the personnel involved in both the operation of the program and the evaluation.

Overview -- The information for this section can flow directly from the Phase I form. A copy of the completed Phase I form, supported by narrative if needed, may be all that is required. The program objectives, activities, intended outcomes, and a summary of evaluative strategies employed are included in the form.

Objectives and Findings -- Each objective can be restated and the evaluation activities and findings reported for each objective. Two or three paragraphs may be sufficient for each objective.

Recommendations -- This may be the most important section of the report. It should answer the "so what" question and provide the feedback for program modification decisions that satisfy the motive for performing the evaluation.

The Role of Financial Analysis in Program Evaluation

The need to include financial analysis as an integral part of the evaluation findings should be known from the beginning and be implicit in the clarified objectives but in reality it often arises after the fact. This section briefly discusses three approaches to financial analysis and provides initial references for further consideration.

Cost Analysis

A common financial analysis function in program evaluation is one of reporting the comparison of budgeted amounts with actual expenditures in order to account for the use of funds as approved. A second purpose may be to break the gross expenditures into program component data to examine internal efficiency or staff accountability. The data are usually presented in a budgeted/expended table and will include salaries, wages, contracted services, travel, supplies and equipment. No sample report is included here because the details must conform to your local system of accounts in order to have internal validity. If the report is for a grant-supported program, then the report must conform to the grantors format.

Problems rarely occur in a budget-expended report unless the program manager has violated management regulations. Problems can arise, however, when these data are taken out of context and comparisons made between programs. Before true comparisons can be made, the cost-data may have to be adjusted. If a program staff is confronted with comparison questions or financial comparisons, the following items may suggest cost data comparison problems:

1. Salaries and wages can be reported using actual amounts, if that data is appropriate, or as a number of FTE times average college salaries for the rank. The correct data will vary with the decision(s) that are implicit. If general costs of two or more programs are being compared, the program area that happens to have the lower ranking and/or less experienced faculty will usually appear less costly. This effect is especially marked when sub-program costs are calculated. Conversely, if a continuation of existing faculty is expected, the actual costs should be used for budget planning. No administrator should penalize a program because it is staffed with experienced and tenured staff.

2. In occupational programs, equipment costs can be a major direct expense in any one year and no direct cost for several years. The true costs may be estimated by amortizing the equipment over its useable lifetime.

3. The method of providing estimates of fixed costs and support services (indirect costs or overhead), if included, must be equitable. Estimates can be based upon percentage of students served, relative total budgetary expenses, percentage of faculty time assigned to the program, or the collection of actual use data as is sometimes done for telephone and postage expenditures. Whatever the method, it should be seen as reasonable and necessary to the comparisons. For example, is it really necessary to attribute a share of the Presidents' Office to the program cost?

4. Comparisons are also possible that are not sum totals. Examples of these techniques include the student/faculty ratio, contact hours per faculty or per program, student credit hours generated, faculty support costs (all expenses except faculty salaries), space utilization, and income generated. These techniques tend to be workload comparisons only and do not of themselves cause program effectiveness or quality to also occur. They do, however, point up program support differences that can lead to further study of cost-quality relationships.

   Initial References:

   a) local college business administrator

   b) WICHE System of Cost Analysis, Western Interstate Commission for Higher Education, Boulder, Colorado.

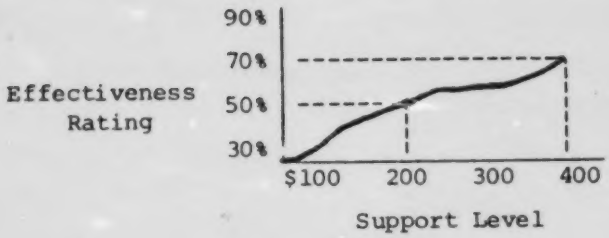
Cost-Effectiveness Analysis

This term can be broadly defined to refer to a variety of techniques that attempt to link cost to quality. Two common problems are: a) estimating the impact of incremental changes in support level within one program, and b) estimating the relative value of alternative methods of achieving the same objectives. Cost effectiveness questions are essentially consumer questions: Do we buy a Ford, Chevrolet or Plymouth; or Is margarine a satisfactory alternative to butter? Many two-year colleges are currently examining mediated instruction as an alternative to the more usual classroom method.

There is little mystery in the analysis -- only the hard decisions of measuring the specific program outcomes and linking them to expenditures while controlling for external effects. Most studies of this type are estimates because of the difficulty of providing the cause and effect relationship.

EXAMPLE

Optimum Cost-Effectiveness Curve



A cost-effectiveness study may result in data expressed in the graph above. In this example, a funding level of $200 per student was associated with a 50% effectiveness level rating (about half of the students accomplished the program objectives satisfactorily). By projecting the supplementary services needed to raise the effectiveness level to 70%, it was found to cost an additional $200 per student. These kinds of questions are implicit in every budget request and budget allocation. The concreteness of the data makes the results less than "proof" but this kind of analysis can provide more accurate estimates than a seat-of-the-pants opinion.

Cost-effectiveness studies often demonstrate feasibility that justifies further experimentation. An example of this situation is presented below using a hypothetical finding from a study of a mediated instructional method versus a regular class method.

a) Students using the Auto-Tutorial Self-Paced (A.T.S.P.) typing program do not differ significantly from students enrolled in regular class instruction on the four skills measured.

b) Not including original development and equipment costs which were grant supported, the A.T.S.P. program can be operated at one-third the cost of the traditional classroom method.

c) The two groups of students are assumed to be comparable but attitudinal differences may exist since the A.T.S.P. group were volunteers with knowledge of the comparative study.

Findings such as these may lead to a recommendation to continue the A.T.S.P. program but all questions are not answered. The program development and equipment costs are real and should not be excluded. The question of student knowledges and attitudes learned in the classroom beyond the four skill areas has not been resolved and the question of whether any student will acquire equal skills in the A.T.S.P. method without the halo effect of an experimental situation has not been completely answered.

In reality, few cost-effectiveness studies are done because familiarity with the program provides the gross cost information. If the comparative costs are very close, the evaluation effort focuses on effectiveness only. If the comparative costs are extremely different, the effectiveness rating is not usually sufficient to outweigh the operational decision based on costs in a universe of limited resources. The least costly is not always the best, but neither is the most costly method the most efficacious. Cost-effectiveness analysis techniques can be used to gain better information on the cost-quality relationship but, like most social science research, the decisions that must be made are judgmental.

Initial References:

a) Stromsdorfer, E.W. Review and Synthesis of Cost Effectiveness Studies of Vocational and Technical Education. Columbus: Ohio State University, ERIC Clearinghouse on Vocational and Technical Education, 1972.

b) "Program Budgeting", Knezevich, Stephen J. McCutchan Publishing Co., Berkely, 1973. Chapter II.

Cost-Benefit Analysis

There can be many kinds of educational benefits but cost-benefit analysis, as performed by most economists, carries with it specific definitions and complex methodologies. The concept that benefits can be attributed to an investment in education is based in the tradition of human capital theory. Education and training can be viewed as both a social and individual investment. Cost-benefit analysis estimates the returns or benefits from that investment. Decision-makers can use cost-benefit analyses to maximize profits; i.e., choose among alternate modes of long-term investment.

Classical cost-benefit models require that all benefits be translated into dollar amounts. The usual "private benefit" is seen to be the salary earned over a time period by the recipient of the education or training. The social benefits can include increased taxes paid, negative benefits of not being a cost to society (welfare, criminal detention), and increased consumption of other economic goods made possible by the salary earned. The calculations compare the multi-year dollar estimates of the value of the benefits and relevant costs of the investment(s) under study. Since factors other than amount and kind of education are active in determining an individual's salary, characteristics such as age, sex, IQ, socio-economic status and motivation must be controlled or the results of a cost-benefit study may be seriously questioned.

A rigorous application of cost-benefit analysis may require the assistance of an economist and/or statistician. Before undertaking such an effort, the program management should estimate the cost-effectiveness of the procedure. Perhaps a follow-up study of graduates in terms of wages and employment status will provide sufficient information.

Initial References:

a) Kaufman, J.J., et. al. An Analysis of the Comparative Costs and Benefits of Vocational Versus Academic Education in Secondary Schools. University Park: Pennsylvania State University, Institute for Research on Human Resources, 1967.

b) ERIC System -- using postsecondary, vocational education and cost-benefit studies as key words.

General References

1. Anderson, Ball, Murphy and Associates. Encyclopedia of Educational Evaluation. Washington: Jossey-Bass, 1975.

(Reads like an "encyclopedia". Provides brief definitions of terminology and leads to other references. A comprehensive sourcebook.)

2. Phi Delta Kappa National Study Committee on Evaluation. Educational Evaluation and Decision Making. Itasca, Illinois: F.E. Peacock Publishers, Inc., 1971.

(Discusses problem areas in evaluation and suggested approaches to address them. Deals extensively with the CIPP model, and its implementation.)

3. Popham, James W. Evaluation in Education. Berkeley: McCutchan Publishing Corporation, 1974.

(A collection of nine papers dealing with aspects of evaluation ranging from "perspectives" to "matrix sampling". A professional reference that provides references, exercises, and examples keyed to the nine topics.)

4. Knapp, Joan and Amiel, Sharon. A Compendium of Assessment Techniques. Educational Testing Service, Princeton, NJ.

(A resource for techniques and assessment tools and how they might be used in evaluation.)

5. Steele, Sara M. Contemporary Approaches to Program Evaluation. ERIC Clearinghouse on Adult Education, Education Resources Division, Capitol Publications, Inc., Washington, DC.

(Paperback. A reference book to standard methods of evaluation and leads reader to other resources. May substitute for Encyclopedia in some ways.)

6. Taylor, Peter A. and Cowley, Doris M. Readings in Curriculum Evaluation. Dubuque, Iowa: William C. Brown, Co., Publisher.

(A collection of readings dealing with general issues, models, and application of approaches to program evaluation. Focus is on curriculum but the ideas are transferable. Articles tend to be theoretical.)

7. Wentling, Tim L. and Lawson, Tom E. Evaluating Occupational Education Training Programs. Boston: Allyn and Bacon, 1975.

(Written primarily as a text. Provides review of evaluation, its techniques and methodologies. Easily understood.)

8. Worthen, Blaine R. and Sanders, James R. Educational Evaluation: Theory and Practice. Worthington, Ohio: C.A. Jones Publishing Company, 1973.

(Written as a text or professional reference. Summarizes literature on educational evaluation and identifies critical needs in the field.)

9. Mager, Robert F. Preparing Instructional Objectives. Fearon Publishers: Palo Alto, California, 1962.

(A "how-to" guide for writing objectives that are measurable.)

DESIGN MATERIALS

The three examples provided in "Adapting the RBE Process", show a variety of applications for RBE given different evaluation situations. Each application demonstrates different column configurations as well as various selections and sequences of column headings. A set of four reproducible masters is provided in this section of the Guidebook to facilitate local design of evaluation forms.

One reproducible master is provided for duplicating the basic outline of each Evaluation Outline Form, Phase 1, 2 and 3. A fourth master provides the suggested column headings for each of the three evaluation forms. This master is designed for duplication on Avery self-adhesive labels, #5375. Three blank labels will occur at the bottom of the final duplicated sheet. These permit users to create "write-in" column headings to meet special application needs.

Before proceeding to design a form or set of forms for any specific evaluation situation, some predesign considerations should be made. Answering the following three questions may be all that is required before initiating the design sequence.

1. What categories of information are most appropriate in this evaluation application? (This will determine the specific column headings required.)

2. In what order will these categories of information be used as the evaluation activities proceed? (This will determine the correct order or sequence of columns on the evaluation forms.)

3. What amount of detail will be required for recording information in each of the selected categories? (This will determine the relative width of columns as they appear on the evaluation forms.)

It may be more convenient for the user to complete the following table as a guide to evaluation form design. Consider the COLUMN HEADINGS that are available and check off those (maximum of four) most appropriate to the evaluation application. The other two columns in the table may be used to indicate the order in which the selected column headings will appear across the form (use 1, 2, 3, 4), and the desired width of the selected columns (1/4, 1/3, 1/2 width of form).

COLUMN HEADINGS		COLUMN ORDER	COLUMN WIDTH
PHASE I Objectives			
Activities			
Evaluative Strategies			
Clarifying Questions			
Outcomes			
Criterion Measures			
PHASE II Clarified Objectives			
Evidence			
Sources-Procedures-Personnel-Time			
Clarifying Questions			
Quality Control or Monitoring Considerations			
PHASE III Objectives			
Findings			
Judgments and Recommendations			
Standards			

Once predesign decisions have been made evaluation forms can be produced by pursuing the following steps:

1. Xerox the appropriate Evaluation Outline Form reproducible master on ordinary white duplicating paper.

2. With a ruler, draw in the columns with pencil or ballpoint using the widths determined previously.

3. Xerox the column headings master on a sheet of Avery labels, #5375.

4. Apply the Avery label column headings in the order previously selected.

5. Xerox the completed intermediate in sufficient supply to meet evaluation needs. Color-coding can be accomplished at this stage by copying on yellow, blue and pink paper for Phases 1, 2 and 3 respectively.

OBJECTIVES

What do we intend to accomplish? Outcomes?

CRITERION MEASURES

What specific task(s) will constitute successful achievement?

QUALITY CONTROL OR MONITORING CONSIDERATIONS

How can the data be summarized and/or synthesized into most meaningful findings?

ACTIVITIES

What activities will actually take place to achieve the outcome of each objective?

CLARIFIED OBJECTIVES

Who (students, staff, others) will do What (knowledges, attitudes, performances) When (interim time points, exit points, after exit points).

OBJECTIVES

These are carried forward from previous phases in some form as reference only.

EVALUATIVE STRATEGIES

How can the outcome be measured?

EVIDENCE

What evidence can be obtained to determine attainment of objectives?

FINDINGS

What is actually taking place? What changes are occurring during implementation? How are changes affecting programmatic factors?

CLARIFYING QUESTIONS

What would an external evaluator ask given the objective, activities and outcomes, and tentative evaluative strategies?

SOURCES PROCEDURES PERSONNEL-TIME

Where can best information be found in terms of evidence? What instruments will be needed? What kinds of information already exist? How can it be collected? Who can assist? When will the desired information be needed?

STANDARDS

What are acceptable levels of performance? Do the standards approximate those required for job entry level? Are there several levels of standards reflecting several levels of competency or occupational goals?

OUTCOMES

What are our realistic intentions?

CLARIFYING QUESTIONS

What should an external evaluator ask, given the objectives and tentative evaluative strategies?

JUDGMENTS AND RECOMMENDATIONS

To what extent is the program effective? What modifications should be considered? What questions are still unanswered? Which components of the program merit further study? How can the client, staff, program and institution benefit from what has been learned?

EVALUATION OUTLINE FORM: Phase 1 - Clarification

EOF-1

Program Outline

EVALUATION OUTLINE FORM: Phase 2 - Data Collection

EOF-2

Management Plan

EVALUATION OUTLINE FORM: Phase 3 - Interpretation

EOF-3

Evaluation Conclusions

RBE Case Studies

Case Study A - Program Evaluation

Certified Laboratory Assistant Program

The Certified Laboratory Assistant Program, which is the subject of this evaluation case study, was developed by a highly skilled professional practitioner recruited by a medium size community college specifically to design and implement the program. A detailed needs assessment was conducted by the program director to establish the basic objectives of the program, supplementing the more general definition of need which initiated program development originally. The professional experience of the director also served as an additional primary source for determining instructional goals and objectives.

The program elements are those more or less traditional to this kind of occupational offering. Lectures, laboratories and a variety of clinical experiences constitute the basic program. Very close articulation between hospitals providing the clinical experiences, which are also the largest primary employers of graduates, and the program has been maintained since its inception.

In the first few years of the program's operation, progress and placement of students proceeded relatively smoothly. As local job opportunities for graduates declined due to a continuing supply of qualified graduates from the program, placement beyond the traditional area served by the college was sought. In exploring access to an expanded job market it was inevitable that needs differing in various degrees from those on which the program was based would be encountered.

Fewer jobs resulting both from market satiation and the general decline of the nation's economy caused competition to become increasingly aggressive.

Rapidly changing practices in the laboratory assistant's working environment demanded that new and more sophisticated skills be acquired by students if their employability was not to be jeopardized. Although articulation with the field had been maintained, the ability of the program to be continually aware of all dimensions of change and to respond temporarily and substantively to assure contemporaneity was in question. Increased competition for jobs among graduates of this and similar programs elsewhere, even within the service area of the college, suggested that the program should seek professional accreditation, the status of the degree and, thus, the marketability of graduates being thereby enhanced. To meet accreditation criteria, both content and process of the program required considerable upward revision, exceeding the standards required by evolving practices in most employment situations.

As a result of the tightening job market for graduates, increasing competition with graduates of similar programs for fewer jobs, rapid changes occuring in the technology and practices of the field and need to enhance the status of the program and its graduates through becoming accredited, the project director felt compelled to re-evaluate the program. The findings of such an evaluation, it was surmised, could substantially aid in recasting and redirecting the program toward resolution of this growing complexity of problems. The project director decided to take primary responsibility for designing and managing the evaluation and interpreting its results, relying on extensive internal and external expertise to assure both comprehensiveness and objectivity of the effort.

The evaluation design chosen by the director made use of all three RBE outline forms incorporating several of the suggested optional information categories. The three suggested phases were followed in various degrees of compliance with the guidelines in a manner which exemplifies the flexibility of the process to meet the specific needs and style of the evaluator.

The clarification phase is in fairly standard format utilizing the suggested information categories: Objectives, Activities, Evaluative Strategies and Clarifying Questions. It should be noted, however that on Phase I forms of the completed evaluation there is no direct item-for-item correspondence between the numbered objectives or their counterparts under activities and evaluative strategies.* On the first page, for example, the evaluator found it convenient to break down the CLA 101 program objective into three parts. Activities are separated into five modes and the evaluative strategy for each identified along side. However, the entire cluster of activities and evaluative strategies apply to the complete CLA 101 objective, there being no limited association between the first section of the objective and its numerical counterparts under activities and evaluative strategies.

The clarifying questions posed in the fourth column of the Phase I forms similarly apply to the entire objective and its cluster of activities and evaluative strategies, there being no intended one-to-one correspondence between the numbered items.

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*(Objectives for only two courses, CLA 101 and CLA 102, of the ten in the program are included in the sample evaluation forms.)

Phase II forms provide information in three standard categories: Evidence, Sources - Procedures - Personnel - Time, and Clarifying Questions. Here again, the evidence sought is basically the same for each of the program objectives. Thus it is only described once in a generalized form applicable equally to all objectives. The second Phase II category begins with some generalized statements but subsequently differentiates among objectives when sources, data collection methods, collection responsibilities and time frames become more specific to respective objectives. The two clarifying questions relate to the whole evaluation effort, the issues they raise applying throughout all phases of the process.

The Phase III forms summarize findings and judgments and recommendations in a highly concentrated form. They represent a synthesis of hundreds of data items recorded in other places by the evaluator. The generalized compact form of these statements dramatically reveals the results of findings and their implications for the program's future organization and management. Such summary statements form an excellent basis for subsequent reporting activities backstopped by detailed documentation of primary data collected and recorded during the course of the evaluation.

As in most evaluation activities the initial step, that of clearly formulating a picture of what the program was currently committed to accomplishing, proved the most arduous for the evaluator. The need to examine student performance objectives on an almost microcosmic level (i.e. in terms of specific, discrete competencies) was, in effect,

obligatory if better articulation with practice and adequate preparation for accreditation were to result. Although the competencies involved were being realized at various levels of actualization through a variety of program activities, much of the prevailing process had not been specified in the original program outline, having emerged as new opportunities and resources evolved.

In preparing for accreditation, the evaluator was aware from preliminary examination of the program, that both the objectives being addressed and the activities and outcomes they generated were so entangled that a clear picture of the program's strengths and weaknesses was impossible to establish. Without these kinds of findings, the program director reasoned that it was impossible to recommend improvements which would lead to a reasonable assurance of accreditation. The results of the evaluation made it apparent that very real difficiencies existed which, if not remedied, would deny accreditation. Disclosure of these findings, along with recommendations which would remove discrepencies between the existing program and one which would meet accreditation criteria, was a major achievement of the evaluation.

Another result of the evaluation was the discovery that a major articulation problem existed between the instructional and clinical aspects of the program. In the course of data collection supervisors of the clinical experience revealed that student progress was being compromised by inadequate theoretical preparation in preceding classroom instruction. The result in the opinion of the clinicians was that overall competencies derived from the program as a whole were substandard.

Subsequently, job opportunities for graduates were probably suffering along with the general standing of the program.

Recommendations arising out of these and other findings were reported to appropriate administrators both verbally and through written reports. The capability of the institution to facilitate changes in response to recommendations lies primarily outside of the program director's jurisdiction. Increases in lecture time, additions to the instructional staff, modifications and enlargement of physical facilities and updating of equipment were among the considerations which administrators were required to confront if the program was to maintain its status.

Whether these needs are satisfied through such measures as reprioritizing within the existing budget, seeking additional financial resources from external funding sources, or placing additional reliance on community-based learning is largely a matter of decision making at a level of authority higher than that of program director. The evaluation results provide the major substantive basis for arriving at these decisions. More significantly, the effort itself endowed the evaluator with insights into the program and a consequent prestige in the eyes of college administrators which assured that person of a major participatory role in charting its future course.

Evaluation in this instance was not only a means for the program director to gain clearer understanding of actual program accomplishments but also a primary mechanism for maintaining a pivotal role in determining control over its destiny.

EVALUATION OUTLINE FORM: Phase I - Clarification PROGRAM OUTLINE

OBJECTIVES	ACTIVITIES	EVALUATIVE STRATEGIES	CLARIFYING QUESTIONS
A total program of study of general and technical education. One English and One Sociology course are included in curriculum. Upon completion of: CLA 101: Student will: 1) know basic principles involved in the classification, identification, culture and control of the more common medical microbial species. 2) understand the nature of microorganisms as they relate to human endeavor. 3) know proper laboratory techniques which will enable him/her to conduct experimentation in a rational and safe manner.	CLA 101: 1) theoretical knowledge given through lectures, and use of audiovisual aids. 2) using teaching laboratory segments students will be given specific instructions on aseptic technique. 3) instruction in streaking of plate. 4) proper preparation of media. 5) Given unknown bacterial cultures, students will identify organism(s) by streaking, subculture gram stain, biochemical testing, and microscopic examination.	CLA 101: 1) theoretical knowledge & understanding will be evaluated through unit quizzes and written assignments. 2) mastery of proper aseptic technique. 3) mastery of proper streaking showing total bacterial isolation. 4) no growth on prepared media upon correct incubation. 5) exact identification of organism giving both genus and species.	1) Are students receiving adequate basic technical and clinical experience in all areas of laboratory? 2) Are the objectives of the clinical experience being met? 3) Is the program producing the competencies designated in the objectives? 4) Are the objectives actually being met? 5) Are students performing satisfactorily at the point of career entry? 6) Are there any prerequisites? 7) Are the objectives realistic? 8) What skills are necessary in each course?

EVALUATION OUTLINE FORM: Phase I - Clarification PROGRAM OUTLINE (Cont.)

OBJECTIVES	ACTIVITIES	EVALUATIVE STRATEGIES	CLARIFYING QUESTIONS
CLA 102: Student will:	CLA 102:	CLA 102:	
1) be proficient in the preparation of suspected stool specimens for direct microscopic examination, examination by zinc sulfate flotation, and formalinether concentration methods.	1) student will be given a stool specimen to prepare by methods given by instructor.	1) proper preparation of specimen with no destruction of larva or ova.	
2) detect the presence of parasites and identify them with a minimum of supervision.	2) student will be given known specimen slides of parasitic organisms. Drawings will be made with proper identification. These will be placed in notebook.	2) a. student will be evaluated on notebook preparation. b. unit quizzes will be given on understanding of parasitic idenfitication.	
3) correctly state the mode of transmission to man, the intermediate host, the definitive hose, and how laboratory identification is accomplished	3) students will draw and explain the life cycle of list of parasites given by instructor.	3) a. evaluated on preparation of drawings. b. unit quiz on understanding of life cycles of parasites.	
4) idenfity correctly all unknown specimens given her/him.	4) student will be given a series of unknown species to identify.	4) exact identification of all organisms given.	
	5) theoretical knowledge given through lectures.	5) evaluation to be done by quizzes, notebooks, and written assignments.	

EVALUATION OUTLINE FORM: Phase II - Data Collection

Management Plan

EVIDENCE	SOURCES, PROCEDURES, PERSONNEL-TIME	CLARIFYING QUESTIONS
1) Distributions of scores on final examinations and averages for all courses.	1) Analysis of final grades and final test scores in all courses to be conducted by program chairperson at conclusion of each semester	Are there external standards which affect entry-level training?
2) Student mastery of course material.	2) Frequent quizzes, examinations, and practicals. These are to be scored by instructor at end of each unit in all courses.	Are academic objectives meeting needs of external sources?
3) Student mastery of technical procedures, instrument operation, and any apparatus necessary for performing test procedures.	3) Faculty will analyze student performance of academic and clinical techniques at the completion of the first semester course.	
4) Student mastery of clincial objectives.		
5) Results of national and state registry examinations.		
6) Success of students in advanced courses or employment situations.	Students will demonstrate mastery of the following technical skills: CLA 101: 1) operation of a microscope 2) preparation and use of media 3) identification of microorganisms by biochemical techniques 4) use of aseptic technique 5) operation of Autoclave CLA 102: 1) method for preparation of ova and parasites 2) identification of ova and parasites	

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EVALUATION OUTLINE FORM: Phase III - Interpretation

Evaluation Conclusions

FINDINGS	JUDGMENTS AND RECOMMENDATIONS
1) 80% of students enrolled are successfully completing the program. Of these 95% have been found to be proficient in their mastery of technical procedures and instrument operation.	1-3) Recommend that the program objectives and course outlines be continued with minor additions and/or modifications including some expansion of basic theoretical knowledge.
2) Advisory Committee review of academic objectives showed these to be sufficient to meet the needs of external sources. However, in view of MLT program, Clinical Chemistry I lacks theoretical biochemical background work.	
3) Of those taking national and state registry examinations, 90% are successfully receiving certification.	
4) Imbalance in rating of lecture to laboratory time.	4) Submit to the Department Head and Curriculum Committee the following proposals for course modifications (Course * to be modified) *CLA 101 - Clinical Microbiology 2 lec 3 lab 3 cr. CLA 102 - Clinical Parasitology 1 lec 3 lab 2 cr. Fall Semester CLA 101 2 lec 3 lab 3 cr. Spring Semester CLA 102 1 lec 3 lab 2 cr.

EVALUATION OUTLINE FORM: Phase III - Interpretation (Cont.)

Findings	Judgments and Recommendations
5) Lack of necessary entry-level instructional instrumentation.	5) Purchase of automated instrument should be considered to enhance student skills for entry-level employment.
6) Clinical externship sequence shows poor use of evaluation forms by clinical staff.	6) a. Clinical externship evaluation to be redesigned to enable both academic and clinical faculty to confer on student performance. b. One willing staff member of each hospital should be appointed as student coordinator to work closely with students when need arises and also be a mediator between academic faculty and clinical staff if need arises. c. Rotation in clinical practice should be changed slightly. Students rotate through each department twice. The Fall semester rotation to be an introductory exposure and the Spring rotation to be more intensive clinical practice.
7) Students entering Blood Bank have a severe handicap with lack of any theoretical and technical knowledge - this exists only during fall semester.	7) A period of orientation should be done during a four-five week period before students enter the hospital covering any entry-level theoretical knowledge and technical skills needed for each department.
8) Students knowledge of individual hospital procedures is inadequate at entry-level training sequence.	8) Clinical faculty will assist with students knowledge of procedures. Clinical instructors should provide students with procedures a day or week in advance of student performance of procedure. Student will read procedure given plus do additional readings necessary to perform said procedure. Students will be required at beginning of each department sequence to familiarize themselves with (using manuals) the proper operation of instruments in that department.

Case Study B - Course Evaluation - (Concise Version)

The Teaching of Reading in Elementary Schools

RBE is equally well suited to evaluating a single course or part thereof as it is to a full-fledged program. Although initially developed for occupational programs, applications to non-occupational instructional areas and to a variety of service and support programs are equally feasible.

The following case study demonstrates application of a concise version of RBE to a core course in the Professional Education Department of a private two-year college. Justification for the concise version is based on the fact that a well developed course outline exists which spells out course objectives, activities, and evaluative strategies in detail. (The course outline excerpt included indicates the specificity already developed in each of these information categories.) The case for eliminating Phase I in its fully-developed form is thus demonstrated in keeping with the first situation discussed in the RBE Guidebook section, Concise Version.

For the evaluator, information categories consisting of Objectives, Activities Utilized, Evaluation, and Comment were judged most meaningful and appropriate for this application. Although the first two column headings comply with Guidebook suggestions, the third and fourth do not. Rather, they reflect the special needs and preferences of an evaluator primarily intent on self-study. The format of the evaluation actually represents a formalization of the more casual process with which

instructional activities are constantly being scrutinized by many experienced educators. Advantages of this more tangible, systematic record accrue to both the faculty/evaluator and others not directly involved with the instruction. An on-going permanent record has multiple benefits for course trouble-shooting, for modifying objectives in relation to changing needs, for articulating with other related program elements, for informing administrators of course accomplishments and for justifying different or increased support for course efforts.

As the program outline makes clear, this course is competency based and has, whether stated or not, highly prescribed techniques and instruments for measuring the adequacy of learners' acquired skills. Standards, although not stated directly in most instances, are implied by many of the entries in the Comment column. The actual evaluation task consists of determining whether competencies are being met at prescribed levels and subsequently using the findings to adjust objectives and activities to achieve necessary compliance.

It should be noted that this evaluation is not exhaustive but rather directed to three major course objectives having particular concern for the instructor. No formal written report is required or necessary in the opinion of the evaluator since the results are primarily intended for internal management. This style of evaluation is valuable for spot-checking the outcomes of a course and for monitoring its pulse over a prolonged period to assure that a consistent, steady state pertains.

OBJECTIVE	ACTIVITIES UTILIZED	EVALUATION	COMMENT
Upon completion of competency 2 in UNIT ONE, the student will have developed and carried out a plan for teaching a comprehension skill.	1) Lectures on "Understanding the Organic Nature of Comprehension." 2) Viewing a film in which the teacher carried out a 20-minute reading lesson with one group of third graders. 3) Viewing the following sound filmstrips: a. Teaching Reading: A Way to Begin. b. Reading Games. 4) Discussion of "handouts" concerning formats of lesson designing, its purpose, content, etc. 5) Designing of lesson plans and supplemental aids. 6) Two field trips: one to the College Reading Center, and one to the Campus School to observe teaching of reading in progress. 7) A two and a half hour (2 1/2 hr.) weekly experience in a local Public School during which students a. observed teaching of comprehension skills and recorded their observations on a given Observation Form; b. taught reading to a small group of students; c. browsed through the various materials and possible resources in teaching comprehension.	The objective was met. Judgment is based on the following: 1) Quality of lesson plans, performances or product of student performances. 2) Student's self-evaluation on their teaching of comprehension skills. 3) Submitted observations as recorded on the Observation Forms. 4) Grades received on the criterion test on comprehension.	Although I did not specify the extent for the objective, I did expect the students to meet the objective at the minimum level of 85%. Students were aware of this expectation.

OBJECTIVE	ACTIVITIES UTILIZED	EVALUATION	COMMENT
The student will demonstrate his over-all knowledge of work identification skills by meeting the following objectives (The complete list of skills can be found on the course outline that follows)	Teaching of work-attack skills with emphasis on phonics. (Consonants, vowels, blends, diagraphs, diphthongs, etc.) Drills on word-attack skills through the use of transparencies. Independent study of syllabication and accent. Compilation of activities for a more effective teaching of word-attack skills.	The objective was met. Judgment is based on the following performances or products of student performances: 1) Two quizzes on the theoretical knowledge of word attack skills. 2) Pre-test and post-test indication of achievement at different levels of extent. 3) Quality of supplemental aids for a more effective teaching of word attack skills.	I did not specify the extent for the objective but did expect the students to meet the objective at the minimum level of 85% Nine students met the extent at 85-95% levels. Three students did not meet the minimum level of 85% This evaluation helped me to realize that additional independent work is necessary for attainment of this objective at the minimum level of 85%.

OBJECTIVE	ACTIVITIES UTILIZED	EVALUATION	COMMENT
The student will demonstrate his over-all knowledge of interpreting potential of students by meeting the following objectives: (There are 20 skills listed under this objective and included in the complete course outline)	Lecturing on strengths and weaknesses of reading readiness. Class discussions on individual differences. Observations of child in a local school according to a checklist.	Objective was met by all the students and this is determined by the: 1) Comprehensive quiz or individual differences and reading readiness. 2) Quality of observation as recorded on the checklist.	Extent for this objective was not specified although I did assume that each student should be able to meet the objective at the 85% level. Three of the students did not reach the minimum level of 85%. I plan to include this unit earlier in the semester so that students may have more practical opportunities to observe and record these observations.

COURSE OUTLINE

Spring 1977

Department:	*Education*
Course Number and Title:	*The Teaching of Reading in Elementary Schools*
Semester Hours:	*3 Per Week: 4*
Course Description:	*A basic course to help students understand the process of reading and the instruction of reading. Emphasis upon competencies of a reading teacher. Opportunities to observe and participate in actual classroom experiences where students spend about two and a half hours per week.*
Course Procedure:	*The following approaches will be considered:* *large and small group discussions, peer teaching, use of modules, transparencies, demonstrations and visits to local schools.*
Evaluation and Grading:	*The final grade for the course will be based on:* *1) Participation in class discussions and activities;* *2) Quality of written reports;* *3) Post-Test in Phonics;* *4) Quizzes;* *5) Observation and participation experiences in local schools. See separate sheet for details.*
Assignments:	*Assignments are to be handed in at the end of the class session in which they are due. Late work will be acceptable only when previous arrangements have been made between the instructor and student.*
Exam:	*There will be no final exam.*

Quizzes — *Few quizzes throughout the semester. You will be informed in advance of the date. These tests should serve as instruments of self-evaluation and reinforcement. No make up quizzes. Absence on day of quiz gives you an "F".*

UNIT ONE - Competencies of a Reading Teacher

Competency I - Understanding Phonics and Structural Analysis

1) Statement

We need to see the relationships between the auditory (phonic) and the visual (structure). Further, we should know the relationship between these two tasks and linguisitic patterns.

2) Content

A. *Word Identification Skills*

1. *Picture Clues*
2. *Configuration*
3. *Sight Words*
4. *Context Clues*
5. *Phonics*
6. *Structural Analysis*
7. *Dictionary Usage*

3) Objectives:

A. *Upon completion of Competency I in Unit One, the student will have developed and carried out two lesson plans for teaching work identification skills.*

B. *The student will demonstrate his over-all knowledge of word identification skills by meeting the following objectives:*

1) *Differentiate between word recognition, word identification and word-attack skills; between phonics and phonetics.*

2) *Define and discuss: picture clues, configuration clues, sight words, context clues, phonics, structural analysis and dictionary usage.*

3) *Given passages to read, the student will unlock words using the word-attack skills and point out some of the limitations.*

4) *Meet the following objectives in teaching consonants:*

   a. *Say the sounds correctly*
   b. *Differentiate between voiced and breath consonants*
   c. *Identify the two consonants used as semi-vowels*
   d. *Recognize the three sounds recorded by X and Y*
   e. *Explain the two sounds recorded by qu*
   f. *Differnentiate between the voiced and unvoiced th*
   g. *Explain the soft and hard sounds of C and G*
   h. *Differentiate between a consonant blend and a consonant digraph*
   i. *Identify the true S sound and the Z sound of s*

5) *Meet the following objectives in teaching vowels:*

   a. *Differentiate between short and long; open and closed vowels.*
   b. *Distinguish between vowel digraphs and dipthongs*
   c. *Define murmur dipthongs and list five of them*
   d. *Discuss the different sounds of ar and or*
   e. *Explain the sound of ow in cow and snow*
   f. *Explain the sound ou in house and could*
   g. *Formulate generalizations about the r-controlled vowels*
   h. *Distinguish words with the long and short oo*
   i. *Define and discuss the schwa sound*

6) *Meet the following objectives in teaching structural analysis*

   a. *Differentiate between phonics and structural analysis*
   b. *Discuss the inflected forms and derived forms of known words*
   c. *Discuss: affix, root words, prefix, suffix, inflectional endings, syllable syllabication, accent, compound words, stem*

7) *Use of dictionary as an aid in determining the meaning and pronunciation of unfamiliar words*

8) *Discuss the importance of teaching phonics through Incidental versus Systematic teaching, Inductive versus Deductive teaching*

9) *Discuss the following approaches to teaching of phonics:*

   a. *Phonovisual*
   b. *Words in Color*
   c. *Detroit Method*
   d. *SRA Method*
   e. *Open Court*
   f. *Detroit Method*

4) Performance

A. Examine phonics materials in the local school where you will be observing, and Room 206. Examine these materials in kits, filmstrips, workbooks, and basal reading series. Examine the materials with the purpose of obtaining ideas and samples for the phonics lesson plans you will be making and form which you will be teaching.

B. Write one lesson plan on phonics or structural analysis skills. Use lesson plan format discussed in class. Include original worksheets, materials and/or activities for independent study. You may use teacher's manuals in basal reading series as a source of teaching ideas. You may use any other sources, and you are encouraged to be creative.

C. Observe two reading groups in the local school and use the Classroom Observation Form.

D. Teach Two lessons on Word Identification Skills to a group of children in the local school. This experience is arranged before time with the classroom teacher. It should not be a sudden imposition.

5) Assessment:

A. Quiz on Word Identification Skills.

B. Two lesson plans taught to children in the local school with your self-evaluation.

C. Quality of the Observation Form on two reading lessons.

Note: Only one competency from a single unit of the course outline is presented in the excerpt. The reason for including it at all is to illustrate how completely objectives and their related performance and assessment criteria were already developed. With such detailed information in the course outline, there is generally no need for mechanically repeating it on evaluation forms. Instead, simple references to appropriate locations in the course outline should normally suffice.

Case Study C - Funded Project Evaluation

Computer Graphics for Engineering Technology

The Engineering Technology Division of a medium-sized community college is the setting for this RBE case study. The staff of this division recognized that its computer graphics segment was rapidly becoming obsolete both in the hardware/software package it employed and in the skills which students were acquiring through its use. Contemporary practice increasingly involves use of sophisticated computer graphics techniques in many of the engineering technologies. An instructional program deficient in this area because of too little or obsolete facilities and equipment could seriously jeopardize its graduates' chances to successfully compete for available jobs.

Assessments of the college's present computer graphics capability as well as the needs for computer graphics skills in evolving engineering technology jobs led to a decision by the division to expand and upgrade its equipment and thus enhance the learning experience in all pertinent areas of the engineering curriculum. Since no college funds existed for facilitating many of the major changes, the division head in collaboration with his faculty, the dean, and other administrators determined to seek external support through state VEA funding. A proposal was written and funding subsequently received to purchase equipment, develop new software, make curricular changes and re-deploy personnel to assure that full benefits readily accrued from these changes.

Funded projects frequently require that at least a minimal evaluation be submitted to the funding agency upon termination of the project documenting its effectiveness in achieving stated objectives. Even if such evaluations are not mandatory, project directors usually find it advantageous to include an evaluation effort as an integral component of the total project activity. Project continuation, regardless of the support source, is frequently contingent on evaluation results. The credibility of the project itself as well as the personnel associated with it are also sustained through evidence generated by a legitimate evaluation effort. Often the thoroughness of the evaluation, even if its outcomes aren't indicative of optimum objective attainment, is sufficient to recommend perpetuation or continuing support for the project.

The project team in this instance was obliged to comply with the evaluation requirements of their funder. In addition to compliance with these requirements the project director was genuinely concerned about keeping an organized record of the project's progress especially as it related to new or altered roles for faculty and students. Wisely, the equipment and facilities improvements were not viewed in isolation from the interacting human system. The inevitable impact of technological change or personnel scheduling, activities, and responsibilities were perceived from the start not only as vital to the ultimate benefits sought but as the most complex outcomes to be dealt with as a result of the introduced changes. The error so easily and frequently made of not anticipating human needs and reactions in response to change can to a large

extent be avoided and the hunam trauma always associated with disruptions in the man/machine interface minimized through such foresight.

This brief but well-organized evaluation provides basic but pertinent information both to the external funding agency and the project director concerning the level of achievement attained relative to stated objectives. The three standard RBE phases are followed using information categories closely paralleling those recommended in the Guidebook. The need to clarify objectives (i.e. bring them into line with reality) is, in this case, unnecessary since design of the evaluation preceded project implementation and any major shift in objectives, activities, outcomes and evaluative strategies could only occur after the fact.

Phase I was completed to provide a clear explication of project elements and intentions as well as a distinct framework for pursuing data gathering and interpretation activities. The objectives are both product and process oriented. As objectives, they lack the classic construction which many educators strive to forumlate and which the RBE Guidebook suggests as strong underpinnings for conducting any evaluation activity. They do represent, however, the reality of objective formulation as frequently encountered and do serve, at least, to categorize and give direction to evaluation activities despite their brevity or incompleteness. The activities, outcomes, and evaluative strategies tied to each objective do demonstrate a specificity which the objectives alone may lack. The easy, almost conversational form of some of the entries here and elsewhere indicate that the evaluators are basically viewing the activity as self-study and a convenient way for formally organizing an informal and personally relevant process.

Criterion Questions are employed in Phase 2 to elicit specific evidence required to substantiate levels of objective attainment. In this instance, the actual evidence rather than the usual projection of needed data is recorded in the column so designated. Phase 2, which normally only determines the form of the evaluation plan, can in a relatively simple application, incorporate the actual data collected into its Evidence column. (A complex evaluation usually requires that the data be collected in another place, a synthesis of it appearing in the Findings column of Phase 3.)

Phase 3 employs only Findings and Judgments and Recommendations columns. The usual Standards category is missing, the findings in this case actually being judgmental statements resulting from the comparison of evidence with unstated criteria which evidently constitute well understood expectancies for the project. The final column summarizes both successes and failures in product and process outcomes and suggests future steps to improve the program in keeping with original intentions.

The statements in this last column are illustrative of the "discovery" which usually results from the introduction of any innovation. Although very specific goals and objectives are being addressed by any evaluation, there are frequently many findings which are either not anticipated at all or whose precise nature and scope are difficult to predict. Such findings are of comparable significance to those explicitly projected and very often exceed them in ultimate importance to the project's success because of the very difficulty involved in foretelling them.

Findings and Judgments and Recommendations, it should be noted, are not totally affirmative in their support of objective attainment. As in

most realistic evaluations, some results falling short of expectation can be anticipated. To eliminate these or try to disguise them can do considerable damage to the project, the learner, the reputation of the project director and the sponsoring institution. As this example demonstrates, clear statements of both shortcomings and successes should be included. In the opinion of this particular evaluator, such frankness was not only ethically essential but of primary significance in assuring fuller compliance with intentions in future operations of the related instructional program.

The evaluation activity was managed as a group activity by the chairman of the college's Engineering Technology Division with representative participation by faculty members in each of its phases. Responsibilities for data collection were borne exclusively by those faculty employing the expanded computer graphics facility in their instructional programs. Data analysis was relatively simple and provided by the institutional research office. Interpretation of findings and the resulting judgments and recommendations were made by the faculty team under the leadership of the division chairman. The latter assumed responsibility for writing the final reports both for the college and funding source. Division faculty had editorial privileges over the final draft, several of their suggested revisions being incorporated into the final copy.

Phase I was largely completed in two evaluation team meetings consuming a total of six hours. Phase II extended over both semesters of the project period. Data collation and analysis took two weeks but did not require any significant time commitment by the evaluation team.

Phase III, including interpretation of findings and the formulation of judgments and recommendations, consumed a total of four hours at two meetings of the evaluation committee. The report was assembled, edited and distributed in its final form during the month immediately following termination of the funding. The division chairman, as project director, assumed major responsibility for this task. Final edit by the faculty team members required about an hour of each individual's time in June after cessation of classes.

PHASE I - CLARIFICATION

OBJECTIVES	ACTIVITIES	INTENDED OUTCOME	EVALUATIVE STRATEGIES
1) To expand present graphics capability	Purchase of Tektronix 4051 Purchase of Tektronix Printer	A flexible computer graphics facility with stand/alone capability, plus a tie-in to host campus computer.	Checking out the system by faculty and students.
2) To provide for student use of computer facility and learning of a computer language and graphics programming.	a) Self paced instruction on 4051	a) Programming ability in BASIC language	a) Check on time allocation on terminal vs. self reliance in writing a program (3 students, fall 1976)
	b) Lecture - Student programming on terminals	b) Programming ability in BASIC language	b) Testing on ability to program Mini Semester course
	c) Extension of above with graphics projects	c) Self-expansion of programming to include graphics	c) Project completion
3) To utilize the system in a variety of course and engineering curricula	a) Architecture students in graphics projects	General ability of students in any engineering technology to use graphics equipment.	Since many hours are required to develop software, two groups were picked to demonstrate applicability to other technologies. a) Projects completed and evaluated
	b) Mechanical Drafting students use without programming ability in a drawing course		b) Producing a drawing and modifying via the graphic software

PHASE II - DATA COLLECTION

OBJECTIVES	CRITERION QUESTIONS	EVIDENCE	SOURCES-PROCEDURES-PERSONNEL-TIME
1) To expand present graphic capability	What additions have been made to facility?	4051 Tektronix (by this grant) Tektronix Plotter (by this grant) Tektronix Hardcopier (by college) Tektronix Tape Unit (by college) Tektronix Opt. 1 for 4051 (by college)	Computer Graphics Laboratory
2) Student use of computer	a) How many students and faculty used facility? How long?	a) Observation by : students and 4 faculty Total time each - 12 to 16 hours	a) Log sheets for 4051
	b) How many students in course? How many hours?	b) 8 students 15 hours of lecture 30 hours of programming time	b) Course records
	c) How many projects?	Five	The first 3 pilot sections had 2 students each; the last 2 had one student.
	What were the projects?	Wall sections Specification format Perspective program CPM w/graphics Building space relations	
	How successful were the projects?	First two, reasonable results without fully achieving goal. Perspective program - good CPM - not completed Building Space Relations - good	

PHASE II - DATA COLLECTION (Continued)

OBJECTIVES	CRITERION QUESTIONS	EVIDENCE	SOURCES-PROCEDURES-PERSONNEL-TIME
3) Use of the system in a variety of courses and engineering curricula	a) See 2c.	a) See 2c.	a) See 2c.
	b) How many students in course	b) 12 students	Sources - Faculty in Mechanical Drafting program
	How many hours?	8 hours	
	What was student interest?	Definitely interested in use but not in programming	Student opinion

PHASE III - INTERPRETATION

OBJECTIVES	FINDINGS	JUDGMENTS AND RECOMMENDATIONS
1) To expand present graphics capability	Facility hardware has been expanded with DCC adding a tape drive and plotter to equipment purchased as part of this grant.	Equipment is not reasonably complete and up-to-date. There is now a need for a better room to house, display, and use the hardware.
3) Student use of computer facility	a) Self-paced instruction on the 4051 requires improvement of program modules. There is a need for greater monitoring of student work and time.	a) Time needs to be spent to improve self-paced instruction modules. Students and faculty using Computer-Assisted instruction for BASIC used 12 to 16 hours of recorded sign-up time. It was observed that recording of this time was somewhat lax. A method should be devised for automatically recording time.
	b) It appeared that the lecture-lab situation with beginning students offered a better solution to learning BASIC where CAI served as back-up and reinforcement.	b) It should be noted that students devoted much greater time in the course than in the CAI technique, and it may, therefore, be of limited value to compare them. It further shows the need to improve CAI assigned projects.
	c) Projects in graphics are well suited to all areas of engineering technology. Student interest is high for their own project.	c) Projects are excellent but care must be exercised in limiting work to be accomplished within the framework available.

PHASE III - INTERPRETATION (Continued)

OBJECTIVES	FINDINGS	JUDGMENTS AND RECOMMENDATIONS
3) Use of System in different courses and engineering curricula	a) Projects in graphics in all programs can be accomplished. Projects must be carefully evaluated for time structure available. b) Students in any engineering technology can use the hardware to produce various graphics solutions with little or no previous programming experience, provided software has been developed for their use.	a) It is recommended that students have a course or self study to learn BASIC language prior to undertaking a graphics project. b) In order for this approach to be implemented, there is a need for greater faculty programming ability and significantly more software to be developed by the same faculty for their students' use.

RBE Orientation Materials

RBE Slide/Tape Orientation Script

*Evaluation is sometimes viewed as an obscure, complex process performed by external experts primarily to reveal the failures of educational programs. Evaluation so perceived distorts its true motives and is understandably threatening.

*In reality, evaluation has as its primary mission the qualitative enhancement of education and should be approached with enthusiasm and confidence.

*Evaluation viewed in this way is more like self-assessment or self-study.

*It is simply an organized process whereby educators seek evidence on their own programs which can help them make decisions for local program improvement.

*Expertise to conduct such evaluations exists in every educational institution. Given the necessary incentives and motivation, this capability can be employed to reap substantial benefits for all participants in the educational process.

*Reality-Based Evaluation (RBE) was developed by two-year college occupational educators to mobilize the basic evaluation skills inherent in every practicing educator.

*The rationale and procedures presented in the RBE Program Evaluation Portfolio represent the best judgments of these informed professionals as to what constitutes a meaningful and systematic evaluation process.

*Reality-Based Evaluation may be defined as "clarifying what we really intend to do, collecting information on what we actually are doing, interpreting how well we did it, and recommending what should be done in the future".

*Evaluation is motivated by many factors--economic, political, administrative, programmatic, and educational. Regardless of the stimulus or intent, educators at all levels are faced with increasing demands to

*Collect, analyze and interpret data relative to the future of their own or other programs.

*Some common reasons for evaluation are:

--to monitor the results of a new program

--to justify continuation of an existing program

* --to comply with funding requirements

--to seek changes that will improve a program, and

--to provide for better informed decisions.

*The RBE process is essentially a common sense approach designed to assist the local evaluator in organizing, communicating, and implementing an evaluation effort regardless of its purpose.

*Reality-Based Evaluation is normally conducted in three phases: Clarification, Data Collection and Interpretation. In each phase, information is collected and recorded in a variety of categories chosen at the discretion of the evaluator.

*The use of Evaluation Outline Forms with each phase is advocated for recording information under selected categories in an organized and logical sequence.

*Phase I is the process of Clarification. The clarification task produces a realistic outline of program accomplishments, how these are being achieved, and how they are being measured.

*Typical optional categories which may facilitate collecting and recording information during the clarification phase are: Objectives, Activities, Outcomes, and Evaluative Strategies.

*A form corresponding to this specific choice of categories serves as a convenient vehicle for executing the Phase I activity. Forms utilizing other combinations of categories may be used as deemed appropriate by the staff conducting the evaluation.

*Information collected and recorded results in the Clarified Program Outline to which the evaluation effort will be subsequently directed.

*Phase II results in what is essentially a guide to data collection. It is a direct extension of the clarified program outline developed in Phase I. Here, specifics of the data collection process are clearly identified and enumerated. In conducting Phase II commonly used information categories are: Clarified Objectives, Evidence, and Sources - Procedures - Personnel - Time.

*As with Phase I, the evaluation outline form guides the evaluator in recording specific details of data collection procedures.

*Phase II results in an Evaluation Management Plan.

*Phase III develops interpretations and conclusions based on evidence collected in Phase II. Major information categories useful in completing Phase II are: Objectives, Findings, Standards, and Judgments and Recommendations.

*As in the previous two phases, a form may be useful for recording information concisely and in a logical sequence.

*Phase III leads the evaluator to make judgments and recommendations resulting in Evaluation Conclusions - the essential basis for all final reporting.

*In summary, Reality-Based Evaluation is a common sense approach to organizing and implementing program evaluation.

*In Phase I, the evaluator is asked to list and clarify existing program objectives and the activities that will occur, and to idenfity evaluative strategies for each objective.

*In Phase II, the evaluator is asked to determine the best ways and means to collect evidence related to the attainment of each clarified program objective established in Phase I.

*In Phase III, the evaluator and colleagues make interpretations and judgments of program effectiveness assembled from evidence collected during Phase II.

*The RBE Program Evaluation Portfolio consists of several components to assist educators in the conduct of local evaluation efforts.

*The portfolio includes a slide-tape orientation, a guidebook containing general instructions for a three phase evaluation as well as a concise version, reproducible masters, and case studies.

*While designed for and by post-secondary occupational educators, the adaptability of RBE assures its applicability to a much broader range of educational programs in a variety of organizational settings.

*Although the aims of evaluation are many, it is generally agreed by educators that program evaluation has as a primary goal the improvement

of educaitonal programs.

**The Reality Based Evaluation process should be useful in attaining this goal.*

**(A closing slide occurs at this point for which there is no accompanying narration.)*

Note: This script accompanies an orientation slide set in the RBE Program Evaluation Portfolio. A recorded version of the script audio cassette format is also provided among the orientation materials.

The asterisk (*) preceeding each statement in the script designates a slide change. Audible beeps are their counterparts on the recorded version.